NATUR CYMRU
Nature of Wales

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Wildlife Trusts issue:

- History & management
- Wildlife gardening
- Cors Dyfi
- Denbigh Plum
- Coedwig ffosil
- Lady Park Wood
- Books, News, Comment...

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Nature of Wales

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NATUR CYMRU EDITORIAL GOLYGYDDOL

The badger is the emblem of the Wildlife Trusts, which celebrate their centenary this year: so the badger on our cover serves to introduce a number of articles by or about Welsh Wildlife Trusts. They reveal how far the Wildlife Trusts have come, and how important they are as champions of Welsh wildlife and as a bridge bringing people and nature together at a local level. The span of their work is enormous, as the various articles illustrate. There is still a long way to go, and much work to be done, but new opportunities are opening up. Giving prominence to the work of the Wildlife Trusts in this their centenary year is our way of raising a glass to wish them and their cause a bright future.

In addition to the half dozen Wildlife Trust related articles, there are two articles from north east Wales. The discovery of a fossil forest 300 million years old at the site of a disused steel works puts Welsh geology on the map yet again. There is only one variety of plum native to Wales, the Denbigh plum, and local pride in this plum is expressed annually in a Denbigh plum festival. Help is needed to find out more about it. I am also pleased that we have been given the opportunity to publish the results of a long-term study into the ground flora of a piece of woodland in the Wye valley. Evidence from Lady Park Wood is a reminder that by studying the detail you can illuminate the general.

I would like to end with a word of thanks to Huw Jenkins for standing in for me during my break from the editor's desk, and equally to Mandy Marsh for adding more editorial tasks to her already heavy workload of magazine production and subscriber management.

James Robertson

Mochyn daear yw symbol yr Ymddiriedolaethau Natur – mudiad sydd, gyda llaw, yn dathlu ei ganmlwyddiant eleni. Felly, mae'r mochyn daear ar y clawr yn ffordd o gyflwyno nifer o erthyglau a luniwyd gan, neu sy'n sôn am, Ymddiriedolaethau Natur Cymru. Yn y rhain sonnir am hynt yr Ymddiriedolaethau Natur a pha mor bwysig ydyn nhw o ran hyrwyddo bywyd gwyllt Cymru a phontio pobl a natur yn lleol. Fel y dengys yr erthyglau, mae cwmpas eu gwaith yn enfawr. Mae 'na lawer i'w wneud o hyd, ond mae cyfleoedd newydd ar y gorwel. Rhoi lle amlwg i waith yr Ymddiriedolaethau Natur yn ystod blwyddyn eu canmlwyddiant yw ein ffordd ni o ddymuno'r gorau iddyn nhw a'u hachos yn y dyfodol.

Yn ogystal â hanner dwsin o erthyglau'n sôn am yr Ymddiriedolaethau Natur, ceir dwy erthygl o ogledd ddwyrain Cymru. Mae darganfod coedwig ffosilau 300 miliwn o flynyddoedd oed ar safle hen waith dur yn rhoi daeareg Cymru ar y map unwaith eto. Dim ond un math o eirinen sy'n frodorol i Gymru, sef eirin Dinbych – a chaiff y rhain eu dathlu yng ngŵyl eirin flynyddol Dinbych. Ond mae angen help i ddysgu mwy am y rhywogaeth. Hefyd, braint yw cael cyhoeddi canlyniadau astudiaeth hirdymor ar blanhigion daear a gynhaliwyd mewn rhan arbennig o goedwig yn nyffryn Gwy. Mae'r dystiolaeth sydd wedi deillio o Goed Lady Park yn ein hatgoffa y gall astudio'r manylion roi golwg gyffredinol ar bethau inni yn ogystal.

Hoffwn gloi trwy ddiolch i Huw Jenkins am gamu i'm hesgidiau fel golygydd yn ddiweddar ac i Mandy Marsh am ysgwyddo mwy fyth o dasgau golygyddol, yn enwedig gan fod ei dwylo'n llawn yn barod wrth gynhyrchu'r cylchgrawn a rheoli'r tanysgrifwyr.

FIFTY YEARS AGO

Great Black-backed Gulls on Skomer

Concern at predation of Manx Shearwaters by Great Black-backed Gulls on Skomer resulted in control measures commencing in 1960. ***DAVID SAUNDERS*** *reports on his efforts half-a-century ago and the subsequent fortunes of the largest gull on the island.*

SKOMER BIRD REPORT

(5TH MARCH TO 22ND NOVEMBER, 1961)

Manx Shearwater (*Procellaria puffinus*). Already ashore on 5th March. Young ones were making their way to the sea from 10th August until late September. One also found on 2nd October (P. FULLAGAR), and another, a very late one which was still downy, on the 26th, but unfortunately it died on the 29th. Recoveries on Skomer of birds ringed on Skokholm (year that of ringing) — 1955, 2 ; 1958, 2 ; 1959, 4 ; 1960, 1 ; 1961, 2. Retraps of Skomer birds — 1955, 1 ; 1956, 1 ; 1957, 1 ; 1958, 1 ; 1959, 4 ; 1960, 6. A bird ringed on Bardsey in 1959 and caught on Skomer in August 1960 recaught on 18th April (M. P. HARRIS). 4 pairs bred in the cellar of the Warden's house and successfully reared 3 young.

Great Black-backed Gull (*Larus marinus*). A total of 283 pairs attempted to breed. Control measures were once again taken : a further account of these will appear in a later issue of *N.I.W.*

Nature in Wales, Volume 8 number 1, Summer 1962

In a remarkable combined operation by the West Wales Field Society (now the Wildlife Trust of South and West Wales) and the Nature Conservancy (now the Countryside Council for Wales) Skomer was purchased in April 1959 for the sum of £10,000 and publicly declared a National Nature Reserve on 15 June. In December, as I was about to leave the army, I was appointed warden and together with my wife, would take up residence on the island in March 1960, where we were to remain for seven years. One of the key management tasks was to be the control of Great Black-backed Gulls and when interviewed I was asked whether I was familiar with a rifle, to which the answer was yes. Fortunately no one enquired further as to my skill, which was not very good – I was far better with a revolver, not that it would be applicable as far as gull control was concerned.

Ken Billington. http://focusingonwildlife.com/news

Great Black-backed gulls *Larus marinus*

Buxton & Lockley (1950) estimated the population of Manx Shearwaters on Skomer in 1946 to be about 25,000 pairs, with 2,500 being killed by Great Black-backed Gulls, which that year numbered 60 pairs. In retrospect Lockley (1958) suggested the number of Manx Shearwaters predated could perhaps be doubled, while Davis (1958) suggested a minimum figure of 4,000 in 1956. Chris

David Saunders

Typical Great Black-backed Gull nest with Manx Shearwater wings

David Saunders

The author puncturing eggs of Great Black-backed Gull

Mylne, who was resident for varying periods on Skomer between April and July 1959 while making the film *Seabird Summer*, collected 1,146 shearwater carcasses from about 120 acres and suggested the annual mortality for the whole island of perhaps 8,000 to 10,000 adults (Mylne 1960).

During the years 1960 to 1962 the food of gulls on Skomer was the subject of a study (Harris 1965). Using the stomach contents of some 200 Great Black-backed Gulls from Skomer he reported that just over 34% of food items (Manx Shearwaters, rabbits, eggs, marine invertebrates) were from the island. Food remains from around nests showed an even greater proportion – 67% of food obtained on the island, with Manx Shearwaters accounting for over 44% of the food.

In 1960 the number of pairs of Great Black-backed Gulls was 260, the following year 283 and in 1962 235 pairs (Saunders 1962). In a paper *Control of Great Black-backed Gulls on Skomer* presented to the Field Society in May 1960, T A Warren-Davis had proposed two methods of control, the shooting of adult birds and the sterilisation of eggs by puncturing. Both methods were undertaken during my seven years, with the addition of trapping adults at the nest. From 1960 to 1962 'lobster-pot' traps were used, comprised of a sheep netting frame covered with wire netting, with a funnel entrance on one side through which it was hoped at least one, sometimes both, of the nesting pair would enter.

In 1962 I commenced using a drop-door trap, a design developed on Skokholm by Dr G V T Matthews. This proved more successful than the 'lobster-pot', for the gulls could walk straight in rather than crouching through a tunnel. The drop-door trap was a rectangular wire netting box, tall enough for a gull to stand upright, with a hinged door at one end. This was held open with a string to a trip stick in the ground carefully positioned beside the eggs and set off when one of the adults returned to incubate. Two large stones in the door prevented the captured gull escaping, while pegs at the side of the trap usually prevented it being turned over by a gull should it try to escape or during strong winds. Normally the captured gull quickly settled down to incubate apparently unperturbed by the situation.

The trap would be placed close to a nest for a day or two in order to accustom the gulls to its presence before it was placed over the nest and set. In some cases one of the pair would return and resume incubating, and thus be caught, before I had walked any great distance away. Others might take several hours before one or other of the pair entered the trap, while sometimes the operation might be a complete failure.

The drop-door trap proved much more successful than the 'lobster-pot', though initially it could not be used on the rock outcrops used by many of the gulls. I then devised a small plank with the trip-stick, the plank being held firm by heavy stones outside the trap. Nests were often inconveniently positioned, perhaps being close to a rock, but over several days could be gradually moved to a more convenient spot close by. Sometimes both of the pair were caught at the same time. Removing one angry Great Black-backed Gull from a trap is rather exciting, so to be faced with two!

Great Black-backed Gulls culled on Skomer:

Year	Trapped	Shot
1960	21	58
1961	75	61
1962	97	47 plus 25 taken at night
1963	93	45
1964	176	36
1965	161	27
1966	59	25

Trapping was only possible during the breeding season, between late April and the early part of June. It was very labour intensive – many of the nests were well away from those parts of the island where the island tractor could carry traps, so it was manpower, myself, a trap on each arm, for I had no assistant warden and no volunteers. I used twelve drop-door traps: several would be set while the others were positioned close to nests in readiness, or were being moved from another part of the island. When day visitors were present, usually from about 10am to 4pm, trapping was only carried out in the hours immediately after dawn and from late afternoon until dusk. The reduced number trapped in 1966 was the result of other management commitments during the nesting season rather than any great reduction in the number of gulls.

Control measures were continued on Skomer by three of my successors from 1967 until 1980, though the annual bird reports do not always contain details. By 1984 the population reached its lowest point with just 25 pairs before beginning a slow increase to 68 pairs in 1994, 95 in 2004, 114 in 2005 (the highest since 1975), since when numbers have declined to 80 pairs in 2011. Predation on Manx Shearwaters is still very evident though clearly not at the scale of half a century ago, and any effect on the population will be minimal. The population is now estimated at over 125,000 breeding pairs and the annual study plots reflect a gentle year on year increase.

Acknowledgement: I am indebted to Chris Taylor, current warden of Skomer, for providing recent information on the Great Black-backed Gull population and for kindly commenting on this paper.

David Saunders

Stacking the traps

David Saunders

Great Black-backed Gull successfully trapped

***David Saunders**, after leaving Skomer, was organiser of Operation Seafarer, the first national seabird census. Subsequently he worked for the West Wales Wildlife Trust until retirement in 1999.*

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Wildlife Trusts in Wales

How did it all begin?

Trust volunteers at Rhos Goch NNR

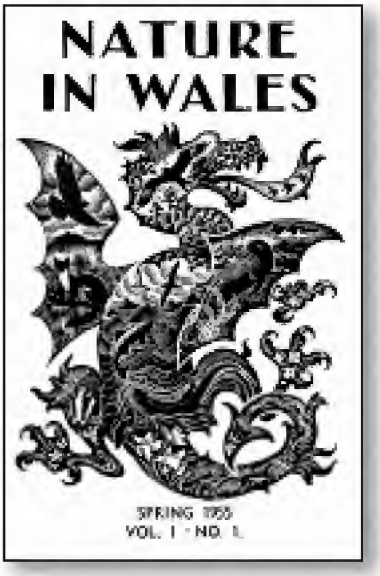
Wales' six Wildlife Trusts are a powerful force for nature. Each Trust acts locally, its strength lying in its 'grass roots' membership base, numbering some 25,000 strong. How has this army of nature's supporters come about? ***KATE*** *and* ***GEOFF GIBBS*** *explore the history behind this success story.*

In 1912 Charles Rothschild founded of the Society for the Promotion of Nature Reserves (SPNR) and over the next few years he drew up a shopping list of 284 reserves, of which 18 were in Wales. Many of these sites considered worthy of preservation were already well known to naturalists. The SPNR contacted landowners and interested individuals, as a result of which the first Wildlife Trust was formed in Norfolk in 1926.

The story of the Wildlife Trusts in Wales starts with the Pembrokeshire Bird Society which became the West Wales Field Society (WWFS) in 1945. One of its first actions was to take up the lease of Skokholm from Ronald Lockley. While the Pembrokeshire islands remained a focus of interest, in the 1950s the Society's interests broadened to the protection of all wildlife, and particularly the Red Kite.

In the 1950s and 1960s, groups of naturalists in Wales came together

to form Naturalists' Trusts. The SPNR continued to support these fledgling Trusts, securing grants and loans for the purchase of reserves, helping the Trusts to employ administrative and conservation staff, and promoting educational projects. The magazine *Nature in Wales* was started in 1955, with an introduction by Ronald Lockley, and was issued to all Wildlife Trust members in Wales until it folded after 30-odd years. *Natur Cymru – Nature of Wales* was started to fill the gap. Cooperation between the Welsh Trusts continued and in 1970, European Conservation Year, the book *Welsh Wildlife in Trust*, edited by Prof. Bill Lacey, was published by the North Wales Naturalists' Trust (NWNT). It included contributions from all the Welsh Trusts and is still a mine of information about the early development of



the Trusts and the natural history of Wales at that time. Several of the chapter authors are still around, with two writing regularly for *Natur Cymru*! Although long out of print, *Welsh Wildlife in Trust* is still available from second-hand bookshops and on the internet for a small sum.

West Wales

Much activity had taken place in west Wales through the WWFS, which appointed two wardens in 1948. One of these, Bill Condry for Ceredigion, was to remain a key figure for the next 40 years. The Nature Conservancy bought Skomer and it was leased to WWFS in 1959; David Saunders was the first Warden there and is still active (see page 3). Two significant events happened in 1968; first, Ronald Lockley gave WWNT some land at Martin's Haven with a house (now Lockley Lodge), providing a mainland base for operations on the islands. Secondly, the Teifi marshes Nature Reserve outside Cardigan was created, giving a superb outdoor experience for visitors to the Welsh Wildlife Centre at Cilgerran which opened in 1993. This is where we saw our first otters in the wild, in broad daylight hunting in the swollen Teifi!

The Glamorgan Trust was managing 23 reserves by 1969, including a number in Gower. It supported a campaign to prevent part of Crymlyn Bog becoming a rubbish tip; after a judicial review the site was created an SSSI and now has European designations. In 1982 the Parc Slip Nature Centre was opened by Prince Charles and name changes were afoot. Both

Sam Bosanquet

Magor Marsh reserve in the Gwent levels

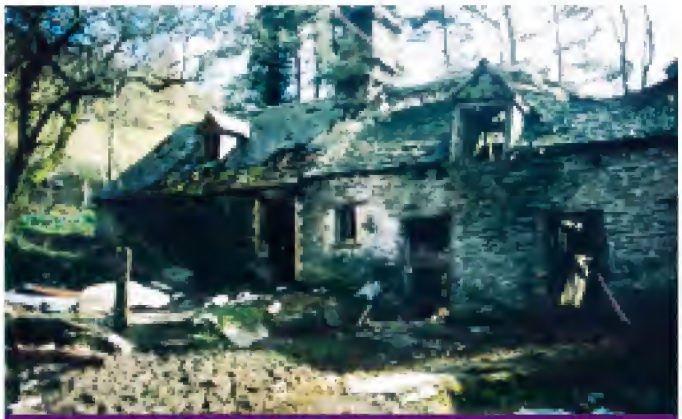
WWNT and GNT became Wildlife Trusts in that year, and in 2002 a merger took place creating the WT of South and West Wales. There has been considerable activity on the Pembrokeshire islands in the last 10 years. First, the buildings on Skomer were totally renewed with a Heritage Lottery grant; then Skokholm was bought by the Trust. Energetic volunteers (working with 'proper' builders) are now doing up the accommodation – saving 90% of the original £1,000,000 estimate. All these developments have been highlighted in *Natur Cymru*'s regular 'Islands Round-up' feature.

In Monmouthshire, one of the Trust's first acquisitions was a piece of Magor Marsh in the Gwent levels: the enlarged reserve now has an education centre. By 1980 the Trust rented one room as an office and appointed Stephanie Tyler as its first staff member. In 1991 a successful campaign raised £150,000 in six weeks to buy Pentwyn Farm, a 30 acre smallholding with flower-rich meadows and a medieval barn. Silent Valley near Ebbw Vale is another important reserve of 125 acres used for school visits and public enjoyment and managed to enhance its wildlife. GWT has worked in partnership with other local organizations to oppose the development of a Severn barrage and to protect the Gwent levels from drainage threats and an M4 relief motorway.

Powys

There are three Wildlife Trusts in the present county of Powys, Brecknock WT being the most southerly. Its early strength was the large number of specialist interest groups that catalogued the plants, animals and geology of the area. They ran a successful campaign against otter hunting, lobbying riverside landowners to deny the hunt access to the Usk. This led to cooperation with the Vincent Wildlife Trust, creation of otter havens and the first national otter survey in Wales in 1977. By the 1980s they had acquired most of their 21 nature reserves. The Hon. Sec. Eric Bartlett was the driving force for many years; his death in 1986 left a void that was filled by employing a Conservation Officer and part-time Assistant. Nevertheless, volunteers remained very important. Then, out of the blue, a £1 million legacy was received in 2003. The benefactor ('Miss

RWT



14th century derelict longhouse at Gilfach

RWT

The longhouse in 2008 after renovation

Williams') was born in a tiny cottage in the Welsh countryside. She emigrated, working as a nurse in the US and then Bermuda, and came to appreciate the work of the Trust on visits back home. Her legacy enabled BWT to appoint reserve and education staff. The Trust's first Living Landscape project is around the old mining town of Ystradgynlais, where habitats are being improved for the endangered Marsh Fritillary butterfly.

Radnorshire WT began as a sub-committee of the Hereford and Radnor NT. Dr Fred Slater, who ran the Newbridge-on-Wye field centre, was an early activist. Collaboration between the Trust, field centre and Nature Conservancy benefitted the wildlife and helped develop the careers of many ecologists.

Immediately after the formation of RWT, the 383 acre farm of Gilfach came up for sale just north of Rhayader. The Trust's sealed bid of £170,500 was initially trumped by a 'mystery bidder' but was later accepted, and the Trust became the owner of a largely unimproved upland farm and a 14th century longhouse. Gilfach is now an SSSI and one of the premier nature reserves in Wales. RWT has pioneered a scheme of private nature reserves, campaigned for the toads of Llandrindod Lake, and works with 65 commoners to manage a 2000 hectare common near Knighton.

Montgomeryshire WT had five reserves on its separation from NWNT in 1981, soon adding the 400 acre Glaslyn, on Pumlumon. There was an early emphasis on cooperation with local farmers and landowners, also surveys of bats, newts and butterflies. By 1992 there were 10 reserves and four staff. They also received a large bequest and acquired 100 acres of saltmarsh on the Dyfi and Llandinam gravels, one of the last untamed stretches of the river Severn. Cors Dyfi was added in 2006: following the felling of conifers, rewetting of the marsh and grazing by water buffalo, the reserve attracted the first pair of Ospreys to breed in mid-Wales for 400 years. In 2011 48,000 visitors came to enjoy the spectacle, giving a boost to the local economy. MWT has been pioneering upland management, in cooperation with other partners, with its Pumlumon Living Landscape project centred on the Glaslyn reserve. This involves rewetting bogs, reducing rapid run-off and the risk of downstream flooding, all contributing to a richer and more varied landscape while also benefitting local communities.

North Wales

The establishment of the Wales office of the Nature Conservancy in Bangor led to recognition of the

Hanes Ymddiriedolaethau Bywyd Gwyllt

Mae gwreiddiau'r Ymddiriedolaethau Bywyd Gwyllt yn mynd yn ôl i 1912, ond yng Nghymru mae'r hanes yn dechrau gydag Ymddiriedolaeth Naturiaethwyr Gorllewin Cymru, a ffurfiwyd yn 1945. Ers hynny sefydlwyd Ymddiriedolaethau Bywyd Gwyllt ym mhob rhan o Gymru, ac wedi sawl newid enw, maent wedi'u sefydlu eu hunain yn chwe Ymddiriedolaeth Bywyd Gwyllt gydag aelodaeth gyfunol o 25,000. Maent wedi caffael rhai o dirweddau mwyaf eiconig Cymru a'r warchodfa gyntaf oedd Ynys Sgomer. Daeth llawer o gynefinoedd llai enwog ond yr un mor werthfawr i fywyd gwyllt yn warchodfeydd yr Ymddiriedolaeth, gyda chymorth cymynroddion ac apeliadau i'r aelodaeth gynyddol. Mae rôl yr Ymddiriedolaethau Bywyd Gwyllt, sut y maent yn cysylltu â'i gilydd ac â'r Asiantaethau Llywodraeth, yn un sy'n datblygu.

Joanna Robertson

Kate and Geoff Gibbs

importance of the fens on Anglesey and Llŷn. When 105 acres came up for sale at Cors Goch, Anglesey, in 1962, NWNT was formed to buy it. By 1965 the Trust had 359 members, an area of sand dunes and a small wood on limestone in addition to the fen. Gradually ten local branches were formed to serve the large geographical area, of which six remain today. In 1970 the first paid officer was appointed, joined by a conservation officer in 1978, and ten years later the first staff member in north east Wales. The local Conservation Corps helped with reserve management. Cemlyn, an important tern breeding site leased from the National Trust, presented many challenges, as when the outlet weir failed, thereby endangering the tern chicks. Today, 1600 pairs of Sandwich terns nest here, protected by two wardens and keen volunteers. By 1988 the Trust had 28 reserves including its largest, 480 hectares of heather moorland at Llyn Brenig. In 1995 the old explosives works Gwaith Powdwr (near Porthmadog) was acquired and Cors Goch gained NNR and Ramsar status.

NWWT now has over 6,000 members, and throughout Wales WT membership has grown to 25,000. This reflects the rise in public concern for the environment, in the face of the losses which people see taking place around them. Although people are concerned about wider environmental issues, and the membership of many environmental bodies has grown over the last half century, people often identify most strongly with their 'home turf'. The WTs are unique in enabling people to engage with their local environment, whilst at the same time feeling part of a UK-wide movement (the Wildlife Trusts).

The future

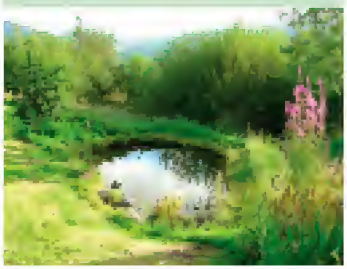
What changes might be round the corner - more cooperation, or even mergers? Over the years, there have indeed been attempts to encourage the Welsh Trusts to work more closely together – for Eifion Jones, Chairman and then President of NWWT over many years, this was a personal crusade. More recently, devolution has created a situation where the ability to speak with one voice has become a necessity; the Welsh Government and its national agencies prefer to deal with a single body when handing out annual grants, for example. Out of these pressures has emerged Wildlife Trusts Wales (WTW), with a Director and small staff based in Cardiff. WTW will have even more to do, once the current merger of Government agencies in Wales is completed. The end result could be an enhanced role for the Wildlife Trusts in speaking up for the Welsh environment, and their emergence as major contractors for the statutory sector. Watch this space!

***Kate Gibbs** is Chair of North Wales Wildlife Trust and **Geoff Gibbs** writes regularly for* Natur Cymru. *They have a keen interest in wildlife conservation in Wales.*

Wildlife Gardening *in North Wales*

Anna Williams

From little acorns come mighty oaks.... Eight years ago one small project in Snowdonia set out to encourage people to get to know about the wildlife in their gardens or school grounds. ***ANNA WILLIAMS*** *reports on the latest developments in an eye-opening success story.*



Wildlife pool in Anna's garden

Back in 2004 Kate Williamson, then Biodiversity officer of the Snowdonia National Park, wrote an article for *Natur Cymru* about the new Snowdonia Wildlife Gardening Project. Eight years on, I am delighted to say that this project is still very much alive and thriving.

I was appointed to run the project in April 2004, to raise public awareness of wildlife-friendly gardening and to revive the connection between people and nature. Thrown in at the deep end, I immediately had to get to grips with organising and judging the Best Wildlife Garden Competition which had been launched earlier that year. This was the initial flagship of the project, and the Wildlife Gardening Partnership has since run this popular competition annually, expanding the geographic area to include Anglesey and the whole of Conwy and Gwynedd. It has established an award scheme where schools, community groups, businesses and private individuals can reach a standard (bronze, silver or gold) with positive feedback and advice on how to achieve each of these.

Ysgol Bontnewydd

The competition has helped staff and pupils at schools and volunteers at community groups, acknowledging their efforts and giving them advice. I was very touched to find our competition certificate proudly displayed on a new wooden notice board, for the whole village to see, in one of our award-winning, well used and cared for community gardens.

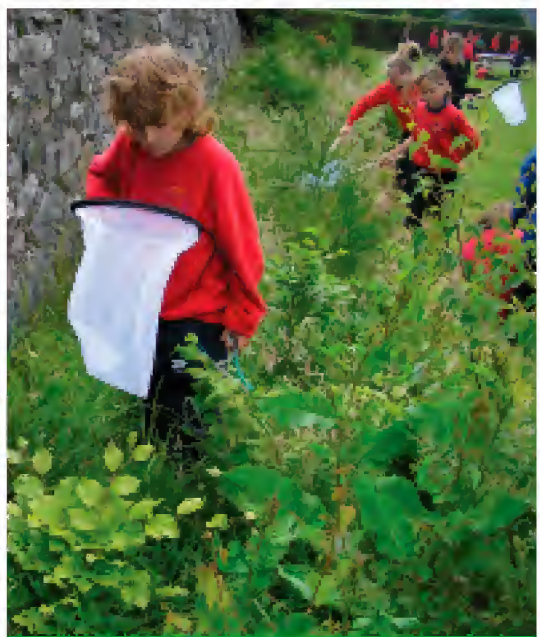
From the competition and an initial information pack, the project has grown in many different directions. I work with community groups, from both helping with planning and grant applications to doing the important and enjoyable hands-on work, getting to know people by digging side by side. In one instance the wildlife arrived minutes after planting a shrub, which drew the comment "I knew we were planting a bee and butterfly border, but I didn't realise they would come that soon!"

Open days

After four years of running the competition we decided to arrange open days in some of the award-winning wildlife-friendly gardens, and I set about finding a grant for another person to join me in the project. In April 2009 we were successful in our application for a management grant from Environment Wales and were thus able to employ Anna Budesha to help with the steadily growing project. She has organised 20 open days in different gardens, with over 800 people getting a chance to see a wildlife garden with frog-filled ponds, flower-rich meadows, simple native hedges and much more.

She also helps run training days, creating gardens, presenting our work at shows and coordinating our volunteers.

The North Wales Wildlife Trust (NWWT) was keen to see the project expand into North East Wales and, with that in mind, Frances Cattanach (NWWT director) and I put in an application to the Big Lottery's People's Millions fund. My gardening year takes an abrupt break in the autumn when I spend most of my energies looking for money to run the project and Autumn 2009 was no different. I had an interesting time putting together a short film for ITV Wales news and running a 'Vote for us' campaign. With the help of all at the NWWT and our friends we managed to win, and secured £50,000, which meant that Iwan Edwards joined the wildlife gardening project the following spring. Now the whole of North Wales was covered by the project and Iwan touched the hearts and minds of many people in deprived areas of North East Wales with his down to earth community gardens. We changed our name to 'Wildlife Gardening North Wales'.



Netting for insects

The next generation

Supported by a steering group of Partners, who contribute financially and/or in kind, I have been given the freedom to take the project where I felt it needed to go to best deliver our objectives and to carry on into the future. Personally I enjoy working with children and schools and have given this particular attention. There is a real demand for skilled wildlife and gardening enthusiasts to help schools develop their outside areas to become stimulating classrooms where children can learn through discovery. Despite living in a rural area, the majority of school grounds have, until recently, been remarkably empty of any kind of wildlife or plants apart from short mown grass. Backed by a curricular requirement, I am regularly contacted by schools that need help. Teachers of most subjects, including languages, maths, art, geography, history, design and technology and, of course, the sciences, can use the garden as an amazing resource and source of inspiration. Over the years I have developed training days for teachers where they get a chance to do the basics, from sowing seeds and potting up, to more advanced tasks such as making raised beds, a pond or a willow dome. The demand is huge and the teachers have been enthusiastic but lacking in skills.

Creating gardens that are educationally useful and easily maintained takes a bit of thought and planning. Depending on the needs of the school, I might help develop plans or become more involved and carry out some of the practical work with them. This is where the fun begins and the important interaction develops, and I hope I pass on my own enthusiasm for nature and for creating wildlife habitats and attractive gardens to the younger generation. There is never a lack of interest: children relish the chance to do a bit of physical work and learn something totally new. Team work becomes important, and different skills develop. There are a staggeringly large number of children who don't notice nature in their lives and it seems to be true that children, on the whole, don't go out exploring in the same way that we did when we were young. So, school gardens become even more important places to connect with nature and learn basic things such as what a blue tit looks like and where a pea comes from.

Partners:
North Wales Wildlife Trust, Snowdonia National Park, Plas Tan y Bwlch, Gwynedd Council, Conwy County Borough Council, Countryside Council for Wales, Treborth Botanic Garden – Bangor University, Antur Waunfawr, Snowdonia Society, Pensychnant Nature Conservation Centre, Portmeirion.

Once, when I explained that the climber we planted (on the trellis we had just put up) would have berries for the birds to eat and shelter for them to nest in, the children showed amazement and satisfaction.

Ysgol Waunfawr BEFORE May 2005

Ysgol Waunfawr after June 2006

Anna, right, helps pupils plant through a weed membrane...

Job well done.

Garddio Bywyd Gwyllt

Yn 2004 tynnwyd sylw yn Natur Cymru at gynllun newydd, Prosiect Garddio Bywyd Gwyllt Eryri. Nod hwn oedd codi ymwybyddiaeth pobl am sut mae rheoli eu gerddi er budd bywyd gwyllt. Bu'r cynllun yn arbennig o lwyddiannus mewn ysgolion, lle mae'r gerddi newydd a grëwyd yn cael eu defnyddio fel adnodd i bob pwnc. Mewn oes pan mae llai o blant yn chwarae y tu allan, mae gerddi'n cynnig cysywllt gwerthfawr â byd natur. Mae'r plant yn dysgu sgiliau ymarferol newydd a gallant weld y bywyd gwyllt yn cyrraedd, mewn munudau weithiau!

Ers hynny ehangwyd y prosiect i ymdrin â gogledd Cymru i gyd ac fe'i hail-enwyd yn Garddio Bywyd Gwyllt Gogledd Cymru. Mae yna gystadleuaeth flynyddol, a chynllun gwobrwyo lle y gall ysgolion, cymunedau, busnesau ac unigolion gyrraedd safon aur, arian neu efydd. Mae rhai o'r gerddi yn cynnal dyddiau agored.

"That is sooo nice" purred a little boy with a smiley face. We provided a mini pond made out of a pig feeder which, to my amazement, attracted three young palmate newts and a whole lot of baby frogs. Another little boy summed it up: "Now we don't need to go to other zoos and places – we have our own wildlife zoo here!" Ysgol Waunfawr was particularly lucky that year with a pair of swifts nesting under one gutter board, noisy sparrows on the other side and great tits in the nest box – what more could they ask for?

Wildlife gardening, as well as school gardening, is gaining popularity countrywide, and I work with other organisations such as the Royal Horticultural Society, ECO schools and Green schools so that together we spread the message effectively. I have been invited to talk at the UK Wildlife Gardening Forum and there is now a growing interest in using the experiences from this project as a blueprint for the whole of Wales.

With help and advice given to over 150 schools, 30 community groups and numerous individuals, there is still a lot more work to do. I am determined to see the project carry on, despite the continuing hard work of raising funds, as I believe the project benefits so many people and, of course, our local wildlife.

***Anna Williams** has always been active in the outdoors, leading children's adventure camps and nature clubs in both Sweden and Wales. For her work inspiring people about plants and wildlife, and her voluntary work leading an award-winning Wildlife Watch group, she was nominated and selected to be an Olympic torch bearer in 2012.*

All photos: the authors

Lady Park Wood

The loss of ground flora

KATHLEEN VANHUYSE, PIETER VANGANSBEKE and GEORGE F. PETERKEN *describe the substantial biodiversity loss at Lady Park Wood where previously the finger of blame pointed at the fallow deer.*

Lady Park Wood - an old growth stand with a thin scatter of bluebells and male fern

Lady Park Wood, a mixed deciduous woodland on the Carboniferous Limestone in the Lower Wye Valley, has been reserved as a 'natural area' for research since 1945, and the trees have been recorded in great detail ever since[1,2]. Routine recording has been confined to permanent transects, but other studies have been undertaken as the duration and value of the long-term record has increased.

Vanessa Williams

One project, a detailed study of factors determining the ground vegetation, was started in 1979 by Vanessa Williams of Cardiff University, but for family reasons it was never completed. A few years later, however, Vanessa donated her field records to the Nature Conservancy Council as the baseline for a potential long-term record of ground flora change, and Jonathan Spencer replaced her wooden marker pegs with metal angle irons. For many years, Vanessa's quadrats were not recorded again, but as the years passed and spot checks suggested a decline in ground flora

An exclosure, demonstrating the effect of deer on the ground vegetation outside the fence

diversity, interest in a full re-survey increased. In 1997 Alistair Monument of Oxford University re-surveyed a sub-sample and confirmed the worst fears: the number of species in each 2m x 4m quadrat had declined by about 50% on average. Then, in 2009, as part of a wider study of ground flora changes in woodlands throughout temperate Europe[5], we re-recorded 34 of Vanessa's 72 quadrats and confirmed the great decline in biodiversity.

This article summarises the changes between 1979 and 2009 and our analysis of the driving forces behind them. For many years, fallow deer got the blame and in consequence the whole reserve was fenced against them in the winter of 2006-2007. Our analysis, however, suggests that other factors are involved. Moreover, if we are right, there are substantial implications for any attempt to restore ground flora diversity in woods that have been unmanaged for years.

Our study

Vanessa's quadrats are distributed throughout the wood and thus sample all ground conditions. Each quadrat of about 200m^2 in which the trees were listed and measured contains four smaller quadrats of 8m^2 and it was in these smaller quadrats that she recorded all species of vascular plants, ferns and bryophytes. We repeated this record (except for the bryophytes), taking care to do so at the same seasons as the original recordings.

We analysed the changes by looking at two essential characteristics of plant communities: the species richness and the plant community composition[3,4]. The latter characteristic was measured by reference to Ellenberg Numbers, which show the optimum levels of light, soil reaction, soil nitrogen and soil moisture, and to indices for palatability, seed longevity and other factors for each species. Thus, if, say, nitrogen had increased in the soil, this would show up as an increase in the average nitrogen optima of the species present.

By building statistical models we tried to link the changes in species richness and plant community composition to soil type, pH, amount of shade on the forest floor and humus quality. The outcome of this analysis is a measure of the probability that any particular factor is having an impact on the plants present and their abundance.

Ground flora changes

In 1979, Vanessa recorded 92 species in the 34 plots we re-recorded. Of these, 36 were not found in 2009 and there were only four new species. The loss of species resulted in a decline in the average number of species per plot from 21.4 in 1979 to 15.6 in 2009. The diversity of the ground flora had declined substantially. The analysis showed that in addition to this important biodiversity decline there was also a change in plant community composition. Different species were affected in different ways.

Grasses and most herbs decreased. Ferns did better and tree seedlings, especially those of later successional species such as beech and small-leaved lime, increased between 1979 and 2009, though these seedlings were much smaller in 2009. The species which decreased most after 1979 were three graminoids, two small shrubs and several forbs (see box). Remarkably, dog's mercury and the spring-flowering ramsons were more frequent in the forest in 2009. Other spring geophytes (bluebell and wood anemone) were also largely unaffected, except on the alkaline soils, where they declined, perhaps in competition with increased dog's mercury and ramsons.

Pieter Vangansbeke Kathleen Vanhuyse

Significantly, the mean seed longevity index at a plot level decreased after 1979, indicating that species present in 2009 relied less on the regeneration from a seed bank. In fact, the species that rely on this form of propagation were almost eliminated.

Species that decreased significantly between 1979 and 2009

Graminoids
Wood-sedge (*Carex sylvatica*)
Tufted hair-grass (*Deschampsia cespitosa*)
Great woodrush (*Luzula sylvatica*)

Small shrubs
Bramble (*Rubus fruticosus agg*)
Dog-rose (*Rosa canina*)

Forbs
Wood spurge (*Euphorbia amygdaloides*)
Slender St John's-wort (*Hypericum pulchrum*)
Violet sp (mostly *riviniana*)
Yellow pimpernel (*Lysimachia nemorum*)
Yellow archangel (*Lamium galeobdolon*)
Rosebay willowherb (*Epilobium angustifolium*)

Reasons

The key finding was that deer grazing was not the sole cause. Statistical analysis showed that the other important factor was lack of disturbance from felling and timber extraction, which maximises shade, minimises flowering, allows leaf litter to accumulate

Yellow archangel
Lamiastrum galeobdolon

and leads on to attenuation of the seed bank.

A parallel study of the tree layer changes in the quadrats confirms these trends. Since 1979 the forest has darkened because the trees have grown and, as succession has progressed, birch, a tree whose canopy allows more light to reach the ground, has been largely replaced by beech and lime, both species that cast a deeper shade.

The statistical models pointed out that the decline in ground flora richness was particularly severe in sites where a thick humus layer could accumulate, prohibiting germination. Also, since species that rely on germination from the seed bank for their propagation had been eliminated, we think that the prolonged period of heavy shade and litter layer build up has had major impact on species richness and community composition.

Deer also had a huge impact on the vegetation structure and selectively influenced the cover and abundance of a limited set of plants. Bramble and great woodrush cover were reduced, changing competitive relations within the vegetation. By selectively browsing on plants such as dog-rose and rosebay willowherb, deer also had an impact on the total number of species present. Moreover, deer grazing inhibited virtually all tree regeneration. The

tree layer study showed that between 1979 and 2009, there was no recruitment (defined as new trees in the plots exceeding a height of 1.5m) at all.

The main factors affecting the diversity of the ground flora

Grazing by deer. Severe grazing affects the structure of the regeneration and the ground vegetation and has an impact on the plant community composition. Also affects flowering and seed production of a subset of plants.

Prolonged shade. Reduces growth and minimises flowering of many species.

Increased accumulations of leaf litter. Reduced disturbance, due to lack of management, increases litter input and reduces the rate of decay. The build-up of a thick litter layer impedes the germination of many plant species.

Declining diversity of the seed bank due to reduced flowering and seed set, which is at least partly caused by accumulation of leaf litter, prolonged shade and grazing.

Dense young growth with a limited ground flora

Implications

This study implies that, if we wish to restore the ground flora diversity, we not only have to reduce grazing, but also resume silvicultural operations. Fencing against deer is not enough, as demonstrated since the complete fencing of Lady Park Wood in about 2006. Although a few deer still get in, grazing has been much reduced, yet there is no discernible increase in the ground flora.

Although there are no other long-term records to prove it, there is no doubt that ground flora diversity has declined throughout the Wye Valley woods in recent decades, and that deer and lack of management are jointly to blame. Lady Park Wood itself is a research reserve, so there is no question of resuming felling there, but in most of the Wye Valley woods there is a need to reduce deer populations and increase the rate at which trees are felled if we want to recover the former diversity of the ground flora. Ideally, perhaps, one would restore the traditional coppice management that was partly responsible for generating the diverse ground flora in the first place: however, the modern form of coppicing that leaves vast heaps of brash over much of the ground is less beneficial than traditional coppicing, because it leaves much of the ground shaded and does not export excessive plant nutrients. Certainly, management regimes that promote perpetual semi-shade, such as selection forest, do not have the same effect: they may improve species richness locally and temporarily, but could also lead to an increase of competitive species, particularly bramble, which happens to thrive in moderate shade.

Lepidopterists will be very familiar with this story (see *Natur Cymru* 40, pp40-41). The woodland butterflies of the Wye Valley have declined even more steeply than the woodland ground flora, and the cause has been much the same – the decline of coppicing and the lack of economic and public consensus on

the best form of alternative management, or indeed on any management at all. Further, just like the plants, the butterflies will not recover immediately if suitable management is restored, for they must return from a distance and await restoration of their food plants.

Common dog violets *Viola riviniana*

Even if it becomes practicable to reduce the deer and increase the felling rate, there are still two large problems to overcome. One is the public view that felling within the Area of Outstanding Natural Beauty is damaging, especially in the Wye Valley, where it cannot fail to be conspicuous. The other is ecological: after nearly a century since the last coppicing, the buried seed bank in former coppiced woods has been reduced to a very few species (such as bramble), so any felling will merely generate an explosion of bramble and wind-borne species, such as rosebay willowherb. We can concentrate on those stands with the least lapse of time since the last coppicing (where the seed bank is likely to be richest) and stands that still have a visibly rich ground flora, but otherwise our successors may have to wait for several rotations of felling and restocking before the ground vegetation can recover fully.

Kathleen Vanhuyse *currently works as a scientist at the Flemish Hunting Association (HVV).* ***Pieter Vangansbeke*** *is researching for a doctorate at the Laboratory of Forestry at Ghent University (Belgium). Both completed their masters theses on long-term changes in the vegetation of Lady Park Wood.* ***George Peterken OBE*** *lives in the Lower Wye Valley after a career in woodland ecology and conservation for the Nature Conservancy and successor bodies.*

Acknowledgements

We must first thank Vanessa Williams, without whom this study would not have been possible, but also Martin Hermy and Kris Verheyen for recording the spring flora in heavy rainfall; Lander Baeten for practical assistance with field recording and analysis; and all three for their enthusiasm and encouragement. We must also thank Elsa and Adrian Wood for their interest and accommodation while we were recording.

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Coed Lady Park

Mae Coed Lady Park, coetir collddail amrywiol mewn ardal galchfaen garbonifferaidd yn rhan isaf Dyffryn Gwy, wedi'i neilltuo'n 'ardal naturiol' ar gyfer ymchwil ers 1945. Dechreuodd Vanessa Williams o Brifysgol Caerdydd weithio ar brosiect arbennig ym 1979, sef astudiaeth fanwl o'r ffactorau sy'n effeithio ar lystyfiant y tir, ond ni chafodd gyfle i'w gwblhau am resymau teuluol. Ym 1997, cynhaliwyd arolwg is-sampl a gadarnhaodd ein hofnau gwaethaf: bod nifer y rhywogaethau ym mhob cwadrant wedi gostwng tua 50% ar gyfartaledd. Yna, cadarnhaodd arolwg arall yn 2009 fod bioamrywiaeth yr ardal wedi dirywio'n sylweddol. Danasod gafodd y bai am flynyddoedd lawer, ac felly codwyd ffens o amgylch yr holl warchodfa yn ystod gaeaf 2006-2007 i'w cadw allan. Mae dadansoddiad diweddar yn awgrymu bod ffactorau eraill yn gyfrifol hefyd. Os felly, mae'n cynnwys goblygiadau sylweddol o ran mynd ati i geisio adfer planhigion amrywiol mewn coedwigoedd sydd heb eu rheoli ers blynyddoedd.

Peter Appleton

Coedwig ffosil Brymbo

Karinopteris derncourtii - dail hadredynen /pteridosperm foliage

Mae hi'n anodd dychmygu amser pan oedd Cymru wedi'i gorchuddio gan goedwigoedd enfawr – pe baech chi ond yn gallu ymweld â man lle mae 'na olion wedi'u ffosileiddio o farchrawn y coed a chnwpfwsoglau a fyddai'n dod â'r gorffennol Carbonifferaidd pell yn ôl yn fyw. Mae Brymbo yn lle o'r fath, fel y mae ***RAYMOND ROBERTS*** *yn ei adrodd.*

Anaml iawn y darganfyddir safle o bwysigrwydd rhyngwladol ar garreg ein drws. Mae daeareg Cymru wedi chwarae rôl ganolog yn natblygiad y wyddoniaeth ers canrifoedd. Mae cyfnodau daearegol sy'n cael eu defnyddio ledled y byd, megis Cambriaidd, Ordofigaidd, Silwraidd, Arenig a Llanymddyfri i gyd â'u gwreiddiau yng Nghymru. Y safle diweddara' i roi Cymru ar y llwyfan rhyngwladol yw Brymbo, ger Wrecsam. Yn ystod gwaith adfer hen safle dur Brymbo daethpwyd o hyd i ugain o fonion 'coed' yn dyddio o'r Cyfnod Carbonifferaidd, tua 300 miliwn o flynyddoedd oed. Nid coed go iawn yw'r rhain ond cnwpfwsoglau a fyddai wedi tyfu i dros 30m o uchder. Mae gan y casgliad ffosiliau ym Mrymbo botensial sylweddol ar gyfer ymchwil i baleobotaneg Uwch Garbonifferaidd ac fe allent hefyd, ynghyd â'r arthropodau ag ôl-ffosilau, chwarae rhan flaenllaw, o bosib, i wella ein dealltwriaeth o baleoecoleg y Cystradau Glo.

Lwc ac amseriad

Daeth y goedwig ffosil i'r golwg yn 2005, yn ystod gwaith i

adfer hen safle dur Brymbo. Roedd y gwaith hwn yn cynnwys cloddio i gael deunydd glân i gapio a chladdu pridd a oedd wedi ei halogi a slag oedd yn gysylltiedig â bron i 200 mlynedd o brosesu dur a haearn. Wrth adfer y safle cloddiwyd glo brig, ac yn ystod y gwaith dechreuodd y gweithwyr ddod o hyd i blanhigion wedi'u
ffoseileiddio yn y darn gogleddol o'r safle. Yn ffodus roedd un o gyn-weithwyr y gwaith dur, sef Peter Appleton, yn ddaearegydd lleol brwd a gofynnwyd iddo ddod i weld y darganfyddiad. Yn ddiweddarach daeth y daearegydd Jacqui Malpas, a oedd yn cynnal archwiliad o RIGS yng ngogledd-ddwyrain Cymru, i weld y safle gyda Peter. Cefndir y ddau yma, a oedd yn adnabod y ddaeareg leol ac yn cydnabod pwysigrwydd y safle, a ddechreuodd y broses o warchod a diogelu'r safle. Darn arall o lwc yn y stori hon yw'r ffaith bod yr ardal o ddiddordeb daearegol yng nghornel y safle, ger casgliad o adeiladau rhestredig sy'n gysylltiedig â'r ffwrnais chwyth a adeiladwyd yn y 1790au. Mae hyn wedi galluogi'r Ardal Dreftadaeth, i raddau helaeth, gael ei hynysu o effeithiau'r datblygiad ar weddill y safle.

Haearn a Dur ym Mrymbo

Mae gan ardal Wrecsam hanes hir o wneud haearn. Cychwynnodd nôl yn yr 16eg Ganrif a gwelwyd ehangu parhaus wedyn. Datblygodd y diwydiant haearn ym Mrymbo tua diwedd y 18fed Ganrif. Yn y 1790au adeiladodd John 'Iron Mad' Wilkinson dwy ffwrnais chwyth ym Mrymbo. Mae Ffwrnais Rhif Un yn dal i sefyll ac mae'n rhan o gasgliad o strwythurau, gan gynnwys y ffowndri (sy'n dyddio'n ôl i 1796), y siop patrwm a'r siop peiriannu, sy'n ffurfio rhan o'r Ardal Dreftadaeth. Parhaodd y diwydiant haearn ym Mrymbo a hefyd, yn ddiweddarach, y diwydiant gwneud dur hyd nes i'r safle gau yn 1990.

Y Cyfnod Carbonifferaidd yng Nghymru

Fe gafodd yr amgylchedd a phrosesau daearegol yn y Cyfnod Carbonifferaidd (359-299 miliwn o flynyddoedd yn ôl) effaith fawr ar lunio Cymru, a hefyd rhoddodd gyfoeth aruthrol o adnoddau naturiol i'r wlad. Yn ystod y Cyfnod Carbonifferaidd, roedd Cymru yn gorwedd o gwmpas y lledredau cyhydeddol. Yn rhan gynnar y Cyfnod gorchuddiwyd

Peter Appleton

Calamites suckowii - cast o ran waelod bywyn cangen / basal part of a branch pith cast

gogledd a de Cymru gan foroedd cynnes, bas, trofannol ble gwaddodwyd llaid-calchog, ac yn y pendraw ffurfiodd y Calchfaen Carbonifferaidd a welir heddiw. Erbyn y cyfnod Uwch Garbonifferaidd cafwyd newid yn natur y gwaddodiad, ble datblygodd deltâu i mewn i'r moroedd bas. Yn ystod y cyfnod yma gwelwyd dyddodiad y 'Grut Melinfaen' wrth i systemau afonol, cymharol o ran maint i'r Mississippi a'r Amason, gario tywod a llaid i greu'r deltâu. Yna cafwyd cyfnod o amodau llaith, trofannol a gofnodir gan ddilyniannau trwchus o dywodfaen, silt, carreg laid a gwythiennau glo. Yn anffurfiol gelwir y rhain yn Gystradau Glo ac mae'r creigiau'n cofnodi amrywiaeth o amgylcheddau gan gynnwys gwastadeddau arfordirol, gorlifdiroedd, deltâu, sianeli afon, corsydd isel a choedwigoedd gwlyb. Gwaddodiad cylchol a welir yn aml, gyda chylch nodweddiadol yn cynnwys glo gwaelodol, a orchuddiwyd gan sialau morol neu galchfeini, wedi'i ddilyn gan siâl daearol, siâl tywodlyd a thywodfaen. Yn eu tro dilynir y rhain gan glai a gwaddod, yn cynnwys gwreiddiau gyda glo uwchben yn adlewyrchu ail-sefydlu llystyfiant ac amgylcheddau corsiog.

Planhigion Carbonifferaidd

Roedd y Cyfnod Carbonifferaidd yn bwysig iawn ar gyfer hanes esblygiad planhigion. Gwelodd y Cyfnod Is Garbonifferaidd arallgyfeirio yn natblygiad rhedyn

Pete Jones

Ychydig gentimedrau'n unig yw uchder cnwpfwsoglau modern
Modern clubmosses are only centimetres high

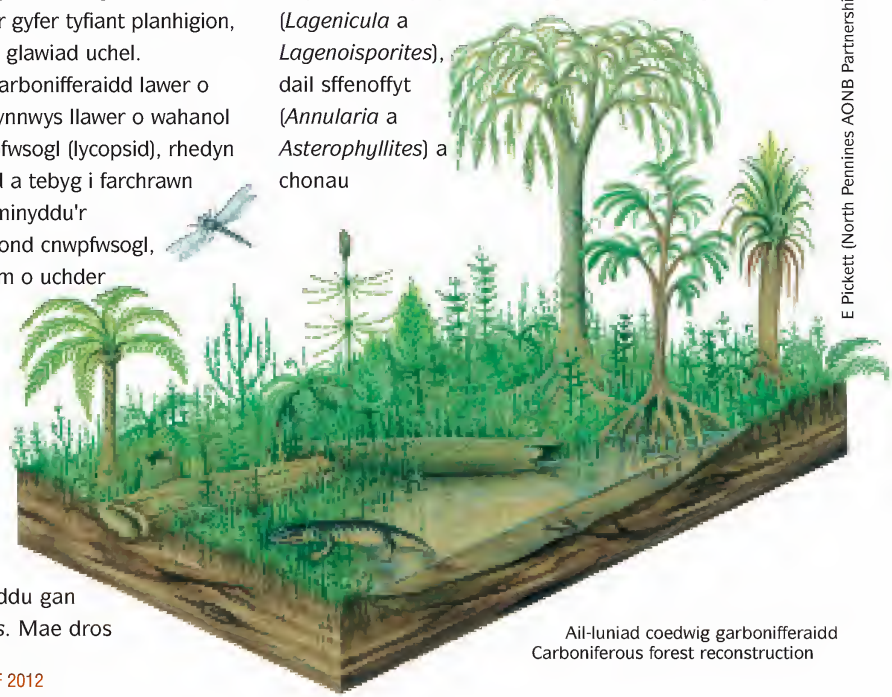
a rhedyn sy'n debyg i blanhigion, yn ogystal â datblygiad coedwigoedd helaeth. Gwelodd y Cyfnod Uwch Garbonifferaidd gynnydd aruthrol yn y cynhyrchiant o lystyfiant daearol, sy'n cael ei adlewyrchu yn y dyddodion glo helaeth o'r amser hwn. Gweddillion cywasgedig o'r llystyfiant oedd yn ffynnu yn ystod y cyfnod hwn yw'r gwythiennau glo. Roedd amodau yn amlwg yn ffafriol ar gyfer tyfiant planhigion, gydag hinsawdd boeth, laith a glawiad uchel. Gorchuddiodd coedwigoedd Carbonifferaidd lawer o dir y trofannau ac maent yn cynnwys llawer o wahanol blanhigion, gan gynnwys cnwpfwsogl (lycopsid), rhedyn a calamites (math o sffenopsid a tebyg i farchrawn fodern). Nid coed oedd yn dominyddu'r coedwigoedd Carbonifferaidd ond cnwpfwsogl, oedd yn aml yn tyfu i dros 30m o uchder ac yn dibynnu ar risgl allanol caled ar gyfer cryfder a sythder. Mae eu disgynyddion modern yn fach iawn mewn cymhariaeth, ac yn debyg i fwsogl o ran eu golwg.

Ffosilau Brymbo

Hyd yn hyn mae ffosiliau Brymbo wedi cael eu dominyddu gan fonau cnwpfwsogl a *Calamites*. Mae dros ugain o fonau cnwpfwsogl enfawr a oroesodd mewn cast wedi cael eu darganfod mewn naill ai tywodfaen neu garreg laid llai gwydn, gyda'r mwyaf tua 2.5 medr o hyd a 1.5 metr mewn diamedr. Datblygodd y lycoffytiau cyntaf tua 400 miliwn o flynyddoedd yn ôl ac roeddent ymhlith y planhigion tir cynharaf. Erbyn diwedd y Cyfnod Carbonifferaidd roeddent yn dominyddu llawer o lystyfiant y byd.

O bwys arbennig ym Mrymbo yw presenoldeb nifer fawr o gastiau coesau calamitau llawn gwaddod, 1.5 metr o hyd a 10 cm o ddiamedr, sydd dal fel roeddent pan oeddent yn tyfu. Ni welwyd cymaint o *Calamites* yn yr unman erioed yn y DU. Mae *Calamites* yn perthyn i'r grŵp sffenopsid (marchrawn) ac maent yn perthyn i'r *Equisetum* fodern. Ond fel llawer o blanhigion ac organebau yn y Cyfnod Carbonifferaidd, roedd *Calamites* yn gewri ac roeddent yn tyfu i tua 20m o uchder.

Yn gysylltiedig â'r lycoffytiau a sffenoffytiau roedd yna fflora amrywiol a gwyddonol bwysig gan gynnwys coesau lycoffyt (*Lepidodendron*, *Lepidophloios* a *Sigillaria*, ac eraill sydd â chreithiau *Ulodendroid* mawr), conau (*Flemingites*), sporoffyliau (*Lepidostrobophyllum*) a megasborau gwasgaredig (*Lagenicula* a *Lagenoisporites*), dail sffenoffyt (*Annularia* a *Asterophyllites*) a chonau



E Pickett (North Pennines AONB Partnership)

Ail-luniad coedwig garbonifferaidd
Carboniferous forest reconstruction

Annularia radiate - brigau deiliog calamit / leafy shoots of a calamite

Peter Appleton

(*Calamostachys* a *Palaeostachya*). Mae yna hefyd lawer o hadrenynau, gan gynnwys *Karinopteris* a *Paripteris*, a'r rhedyn *Sydneia* (yn flaenorol ond yn hysbys o Cape Breton, Canada). Mae hadrenyn yn grŵp diflanedig o blanhigion esblygodd yn y Cyfnod Defonaidd; roedd ganddynt ddail tebyg i redyn ond roeddent yn cynhyrchu hadau.

Peter Appleton

Ulodendron majus - coesyn lycoffeit / lycophyte stem

Gwerth cadwraethol Brymbo a dyfodol y safle

Lleolir strata glo ar draws ardaloedd eang o Ogledd America, Ewrop a Tseina sy'n cyfateb i'r ardaloedd hynny a oedd yn gorwedd o gwmpas lledredau trofannol yn ystod diwedd y Palalosöig. Ceir enghreifftiau eraill o blanhigion Carbonifferaidd sydd wedi goroesi yn y fan a'r lle; Joggins yn Nova Scotia yw'r mwyaf adnabyddus, ble mae dros 50 o lycoffytiau mewn amryw haenlinau sy'n rhan o ddilyniant 4 cilomder o drwch. Fodd bynnag, mae Joggins yn safle arfordirol anghysbell sy'n dioddef hindreuliad a chwympiadau clogwyn. Mae Brymbo, mewn cyferbyniad, yn safle mewndirol cryno ac yn hygyrch lle gall rheolaeth ofalus gynnig potensial mawr ar gyfer ymchwil parhaus yn y dyfodol ac fel adnodd addysgol ar lefel ryngwladol.

Mae pwysigrwydd daearegol y safle wedi cael ei gadarnhau gan gofrestriad fel safle Arolwg Cadwraeth Ddaearegol a fydd bellach yn galluogi Cyngor Cefn Gwlad Cymru i fwrw ymlaen ag ymgynghori ynglŷn ag hysbysu'r safle yn Safle o Ddiddordeb Gwyddonol Arbennig. Fodd bynnag, mae'r ddaeareg yn cynrychioli un elfen yn unig o ddiddordeb y safle sy'n ffurfio'r Ardal Dreftadaeth ehangach; mae yma hefyd archaeoleg ddiwydiannol a allai fod yn rhan o atyniad ymwelwyr gwych ar gyfer gogledd-ddwyrain Cymru. Yr her nawr yw dod â'r holl fuddiannau at ei gilydd i ddiogelu'r holl ddiddordebau, ond hefyd datblygu'r safle fel cyrchfan ymwelwyr.

*Mae **Raymond Roberts** yn gweithio fel Uwch-Daearegydd i Gyngor Cefn Gwlad Cymru ac yn arwain ar faterion daearegol ar draws Cymru.*

Brymbo fossil forest

Brymbo fossil forest near Wrexham is a site of international geological importance. It was first discovered in 2005 during reclamation of the derelict Brymbo iron and steelworks and, together with the industrial archaeology and heritage of the area, has great potential for future research and as an educational resource.

The Carboniferous Period (359-299 million years ago) had a profound effect on the shaping of Wales and has left a great wealth of natural resources. At that time Wales lay near the equator and was covered by shallow tropical seas. Great forests of ferns, horsetails and clubmosses grew in abundance: unlike their modest descendants, these could be 20-30m high. It was this growth which eventually became compacted to form the coal seams of Wales. The fossils found at Brymbo so far have been mainly clubmosses and horsetails, commonly preserved as sediment-filled casts in the sandstone or mudstone, and are not found in such quantities anywhere else in the UK.

All photos: Oliver Prŷs Jones

The Denbigh Plum

Conserving Wales' fruit heritage

Denbigh plums

What is it, where is it, and should we be concerned about its future? ***OLIVER PRŶS-JONES*** *considers the history, status and recognition of the only known plum variety native to Wales, and considers ways to conserve and study its genetic identity by involving the public.*

Fruit varieties derive from chance finds as well as intentional selection and breeding. Old varieties often came to local prominence through discovery of a notable tree by an interested individual. Even after widespread commercial sale of fruit trees began in the late 19th and early 20th centuries, many varieties were not widely known and became only locally popular. In recent times we have become more aware of the many threats to our native biodiversity, although often we recognise losses only with hindsight. The diversity of our 'fruit heritage' is also threatened. The 'localness' of many traditional varieties makes them particularly vulnerable to neglect, changes in fashion and taste, and simply lack of awareness.

Where and what are Denbigh plums?

In North Wales, and particularly in the Vale of Clwyd, many people know of the 'Denbigh Plum'. They may have, or think they have, one growing in

their garden, or know of a tree said to be a 'Denbigh'. Since 2009 Denbigh has held an annual Denbigh Plum Festival, recognising the pride the town has in having the only plum variety thought to be native to Wales. Nevertheless, the true identity and status of the Denbigh Plum remain uncertain. Do we all mean the same thing when we talk about them: are all 'Denbighs' the same? What is the extent of their distribution, and are they threatened? Plums labelled 'Denbigh' can currently be bought from a few nurseries and individual suppliers, for example Ian Sturrock, who specialises in rare and local varieties such as the Bardsey Apple[1]. However, it is unclear whether these are all the same, and how they compare to old trees thought to be 'Denbighs' still growing in the local area. If we are to avoid undervaluing, and perhaps accidentally losing a well-loved plum with a long history, we need to answer such questions – and for that we need more information.

Original account by Maund

CAMBRIAN PLUM.

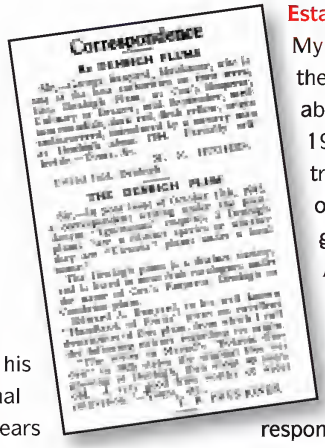
ALTHOUGH the propagation of new varieties of Plums has not been wholly neglected by the most considerate portion of Horticulturists, and some varieties of high value have been produced, still, generally speaking, particularly in country towns, a more wretched display than is usually seen of fruit of this species can scarcely be imagined. Every body knows the Green Gage, but its culture is much neglected; and indeed, as a standard, it is not very well suited to all situations. The Orleans is equally well known, and in the estimation of nine-tenths of the inhabitants of England is quite perfection. These persons, however, who are conversant with the best varieties in cultivation, must at once pronounce it to be a leathery, harsh, ordinary fruit, unfit for the dessert, and possessing no superiority as a kitchen fruit.

The Cambrian Plum, which we now figure, is doubtless a descendant of the Orleans, but in every respect its superior: it is, however, but little known, except in the neighbourhood of

old'. Bunyard[4] quotes Maund, but refers to the date Maund first started his series of books in 1825 – from this subsequent writers have deduced that the original tree was growing in Denbigh in 1785, whereas 1805 seems more likely. Whether that was the very first tree (derived from a natural 'seedling'), or whether it had been introduced from another area, is unknown.

History and origins

The origin of the Denbigh Plum is poorly understood. The first known reference is by Benjamin Maund , who produced 13 volumes of his 'Botanic Garden' (on flowering and cultivated plants) between 1825 and 1850[2]. His section on the 'Cambrian Plum', from Denbigh, was published in 1845 in volume 11, in a supplement called the 'Fruitist'[3]. This mentioned that Mr Vickers, nurseryman, of Denbigh, 'has cultivated it extensively, and introduced it to the notice of his customers. He has informed us that the original tree is now growing at Denbigh, about forty years



Correspondence

Re DENBIGH PLUMS

THE DENBIGH PLUM

Establishing identity

My father stimulated my interest in the Denbigh. He was enthusiastic about the variety from the late 1920s, and had two large old trees (one grafted and one on its own roots), which still survive, growing in his garden in St. Asaph, six miles from Denbigh. The trees were old when he moved to the property in 1938. Both he and another local man wrote letters in response to a query about the

Trees reach about 20 feet on their own roots. The size of grafted trees is determined by the rootstock.

Blossom usually appears in the second half of April. The 5-petalled flowers are white and slightly scented.

Denbigh plum, in a local newspaper, in 1942. At the time it was thought the Denbigh was probably a variety known as Cox's Emperor; much later on my father made me aware that there was still uncertainty about its true identity.

In the past the plum was also listed under the names 'Denbigh seedling', 'Cambrian' and 'Queen's Crown'. Scion wood from 'Denbigh' and 'Cox's Emperor' trees from the National Fruit Collection at Brogdale – kindly donated by Ian Sturrock – that I grafted onto my own stock tree, produced plums that were clearly not identical. The national fruit collection's entry for the Denbigh seems to agree (www.nationalfruitcollection.org.uk): their 'Denbigh' is less like those familiar to me than their example of 'Cox's Emperor'. They show 'Queen's Crown' as a separate, but similar variety.

It is also by no means certain that all 'Denbigh' plums are the same thing; possibly some are offspring or relatives of the original variety, which have 'self-seeded' from fallen plums. These might be similar to the parent, but not the same, with the result that a number of 'Denbigh-like' varieties may exist. The true state of things will only become clearer with more information, and this will almost certainly need to include genetic typing of a range of specimens.

A runner (black arrow) from the parent tree has given rise to a new young tree, which is already putting out a runner of its own (white arrow).

Propagation and grafting

All plum varieties can be grafted onto a range of rootstocks, to produce trees of various sizes. A very useful characteristic of the Denbigh is that, unlike many commercial varieties, it will grow into a reasonable tree on its own roots. Denbighs send out runners and put up suckers around the base of the tree: they can therefore be propagated without the need for grafting. This characteristic may in part account for their local popularity, allowing neighbours and friends to pass them on by transplanting suckers from one garden to another. However, from reading old copies of local papers it is

Fruit in various stages of ripeness, fruting from mid August to the first week of September.

Fully ripe fruit, size 5-6.5cm diameter (2-2½ in.). The flesh is dark yellowish, juicy, and delicious fresh or cooked.

also clear that local nurserymen sold Denbigh plums throughout the Victorian era. An account in the North Wales Chronicle, of the Denbigh annual flower show, on 6th Sept 1867, states: "Mr Roberts, seedsman, Denbigh, exhibited a magnificent collection of roses, dahlias, asters, stocks, and verbenas. Also prolific specimens of Denbigh plums, which were a theme of much attention and admiration."

Identification

Since 1988 I have accumulated a small collection of supposed Denbigh plum trees from a variety of sources. These have been grown in broadly similar conditions in the same garden. There appears to be a degree of variability in the appearance of both the trees and the fruit, depending on their source; whether this reflects underlying genetic variability is not yet known. There are however a number of common features shared by these trees.

How you can help

I would like to solicit your help. Many of you may be able to contribute information that will be useful. Cofnod (the North Wales Local Records Centre) have kindly agreed to host the collection of distribution records and associated information submitted via their website. A first step is to find out where supposed Denbigh plum trees are located, especially any particularly old or large trees – whatever their state of health. This information will provide a better understanding of the distribution and abundance of existing trees, allow for their examination, and provide a source for future genetic studies. It could also provide a reference collection of specimens, by grafting or from sucker growth, for comparative purposes, and help save any notable trees that are threatened or dying. The end result will hopefully further our understanding, protect part of our local heritage, and make sure that at least one delicious fruit variety remains available for the future –

Fully ripe fruit, rounded (obtusely ovoid), with a shallow groove extending from the stalk end towards the fruit tip.

Acknowledgements
Andrea Hart (Botany Library at The Natural History Museum, London) kindly hunted out material relating to Benjamin Maund; Mary Pennell helped with queries regarding the National Fruit Collection in Kent. Thanks to Ian Sturrock for showing me how to graft fruit trees.
www.iansturrockandsons.co.uk

perhaps along with others that are as yet unrecognised. Many other varieties under threat might also be helped in this way.

If you would like to contribute records of Denbigh Plum trees – especially old or large trees, or other information that may be helpful, please submit these via Cofnod's Online Recording System, **www.cofnod.org.uk** using the special recording form for Denbigh Plums, or contact me by email at: **OPJ@talk21.com**

Oliver Prŷs-Jones *is a zoologist and medical doctor living in the Vale of Clwyd. All the photos used above relate to specimens in his collection (elevation 165m).*

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Eirinen Dinbych

Dim ond un math o eirinen sy'n gynhenid i Gymru, eirinen Dinbych, a chaiff y balchder lleol yn yr eirinen yma ei fynegi bob blwyddyn yng ngŵyl eirin Dinbych. Ond nid oes neb yn siŵr beth yn union yw'r eirinen hon, a lle mae'n tyfu. Un o'i nodweddion cyson yw y gellir ei thyfu o grachgoed, sy'n helpu i'w lledaenu. Mae maint a siâp y goeden a'r lliw, yr adeg blodeuo a nodweddion y ffrwyth yn weddol gyson hefyd. Serch hynny mae llawer mwy i'w ddysgu am yr eirinen Gymreig hon, ei dosbarthiad a'i nodweddion. Gofynnir i'r darllenwyr anfon cofnodion i Cofnod fel ffordd o gasglu mwy o wybodaeth am y goeden ffrwythau ddiddorol hon.

Rob Parry

At the bottom of the garden

Garden wildlife surveys in Cardiff

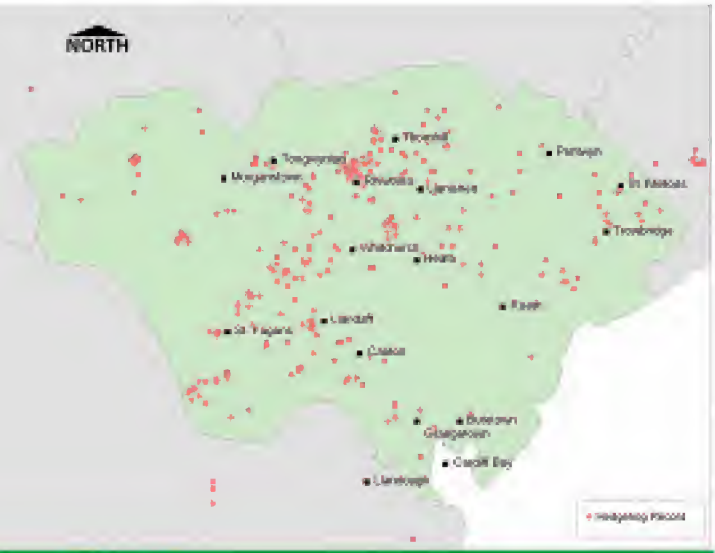
Chaffinch – every garden should have one

It's been recognised for some time now that gardens have great potential as refuges for wildlife in urban areas. But how to record and monitor their success? Wildlife groups in Cardiff tackled the problem head on and asked the garden owners to help. ***ROB PARRY*** *outlines the success of two garden surveys which provided thousands of new wildlife records.*

When considering the best places to see wildlife in Wales we are all too often drawn toward rural landscapes such as the hills and mountains of Powys and north Wales, or the coast and offshore islands of Pembrokeshire. Although these areas have undoubted benefits for wildlife, they are not alone and there is sometimes the tendency to overlook the incredible wildlife on our doorstep – often in the most urban of settings.

This urban wildlife can at times be under considerable pressure – new developments, roads and infrastructure continually chip away at the amount of space we have for wildlife in our towns and cities. For this reason our gardens take on a greater significance, acting as miniature nature reserves for a wide variety of plants and animals.

Perhaps the greatest risk to urban wildlife is not directly from human impacts, but from the lack of awareness and appreciation we sometimes



Hedgehog sightings

Mapping the garden ponds of Cardiff

show toward it. To help demonstrate the importance of gardens for wildlife the Wildlife Trust of South and West Wales (WTSWW) and the Cardiff Biodiversity Partnership have run two surveys in Cardiff, the first in 2009 and more recently in 2011.

The surveys have three main objectives:

- Raise awareness and inspire people about the wildlife in Cardiff
- Record wildlife, habitats and management practices adopted in Cardiff gardens
- Help direct practical conservation activity

Survey forms, which were sent to every household in Cardiff, were purposely designed to ensure as many people as possible could take part, young and old alike. This approach meant that throughout spring and summer of 2009 and 2011 hundreds of volunteers took to their gardens and allotments to record the wildlife they saw and all the different habitats that make their gardens such important refuges for urban wildlife.

Specifically, we wanted to know about various taxa found in gardens, from mammals, birds and butterflies to amphibians, reptiles and even waxcap fungi. To make the survey as enjoyable as possible, and to improve accuracy, the forms came with their own photo identification of each of the species – the exception being waxcaps, where participants were asked to look out for brightly coloured (pink, red or yellow) mushrooms in their lawn.

In total, there have been over 10,000 new wildlife records for Cardiff during the two surveys, including 1,038 mammal species and 685 herptiles, not to mention the 36 brightly coloured lawn fungi.

The results of the survey have given us an insight on the distribution of certain species across Cardiff, such as the hedgehog (303 records), a priority species thought to be declining nationally. These maps and data fill some gaps in our knowledge and help WTSWW and partners plan conservation activities in the city. This may be anything from more detailed, targeted surveys, practical habitat management and advice, or raising awareness of the detrimental impacts of slug pellets

Rob Parry

Just one of the waxcaps found in Cardiff gardens

on hedgehogs. This action is particularly important, as 91% of those who took part in the survey used slug pellets in their garden.

It was essential to record garden habitats as well as species, particularly for habitats such as lawns and ponds. Although ponds are well recorded on nature reserves, country parks and designated sites in Cardiff, little is known about their true distribution in the city due to the difficulty in recording them. The surveys have helped to overcome this, and a total of 187 new garden ponds have been recorded in Cardiff over the two surveys.

We hope that with further surveys we can learn more about the distribution and threats to urban wildlife and habitats. And with this knowledge, the people of Cardiff will be in a much better position to appreciate and help protect their wildlife in the future.

WTSWW has been overwhelmed with the positive response to the survey and would like to thank all those volunteer recorders for taking part and making the surveys such a success. It is hoped that the survey will be repeated in 2013, with even more people taking part, benefiting both wildlife and people.

***Rob Parry** started with the Wildlife Trust of South and West Wales as a volunteer, and after ten years is now Conservation Manager, helpng direct WTSWW's conservation and education objectives.*

Arolygon bywyd gwyllt gerddi yng Nghaerdydd

Yn aml mae bywyd gwyllt mewn ardaloedd dinesig yn gorfod ymladd yn erbyn datblygiadau newydd ac arferion diofal, ond gallai'r holl le sydd mewn gerddi leihau rhai o'r anawsterau hyn a rhoi cyfle i fywyd gwyllt ffynnu. Mae dau arolwg gerddi a wnaed yng Nghaerdydd nid yn unig wedi cynhyrchu dros 10,000 o gofnodion newydd ond mae wedi agor llygad pobl i bosibiliadau helpu bywyd gwyllt, ac egwyddorion arfer da. Cynllunnir yr arolwg nesaf ar gyfer 2013, a gobeithir y bydd hyd yn oed mwy o bobl yn cymryd rhan.

All photos: Emyr Evans

Cors Dyfi - *one of nature's jewels*

Common lizard basking on a fencepost

Cors Dyfi is one of Montgomeryshire Wildlife Trust's best kept secrets. A small reserve just a couple of miles south of Machynlleth on the main Aberystwyth road, Cors Dyfi has recently been synonymous with hosting the Dyfi Osprey Project. Despite one species taking most of the limelight over the last few years, this 33 acre wildlife haven has much more to offer, as ***EMYR EVANS*** *reports.*

After a 30 year period as a Sitka Spruce plantation, Cors Dyfi was acquired by Montgomeryshire Wildlife Trust in the mid 1990s, with the sole objective of returning it to a vibrant and diverse landscape in which wildlife could flourish. Today that process is still ongoing and the reserve boasts an impressive suite of fauna and flora, which thrives in the distinctive mosaics of habitats created over the last decade and a half. Central to the creation of these differing microhabitats has been the selective grazing of the reserve by water buffalo during summer months. No other large grazing animal is suitable to forage in such a rugged environment and the small population of water buffalo has done a great job over the years.

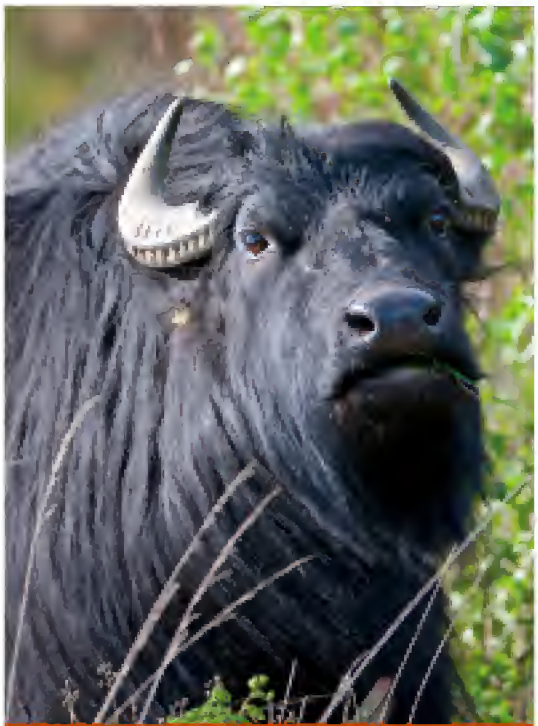
In 2011 our flora list amounted to some 96 species, four short of the magical century of plants we ultimately hope to record on the reserve. Plants have been the main beneficiaries of the continual churning up of the wet peat and soil by the water buffalo. Royal fern is found throughout most of the reserve in small pockets, as is the ubiquitous

wildflower bittersweet or woody nightshade – a dainty vine belonging to the potato (Solanaceae) family which is poisonous, although not as toxic as its close relative the deadly nightshade.

Yellow flag iris adds a splash of bright yellow in May and June, along with the green foliage and brown and purple catkin flowers of bog myrtle, which is widely distributed throughout the reserve. Bog myrtle also adds a rather sweet aroma to the air on non-windy days and it's easy to see why humans have applied various uses to this peat-loving shrub over the centuries. Used as an insect repellent, a condiment, a perfume, a beer flavour enhancer and as an anti-depressant, the plant is now commercially grown in Scotland for its acne-preventing properties and as a soap ingredient. Bog myrtle has even found its way into some Royal wedding bouquets in recent years!

It's not just humans that find bog myrtle useful. The extremely rare rosy marsh moth, found only in a handful of sites in the UK, relies on bog myrtle as its primary food source during its larval stage. Indeed, it was only recently that our intrepid volunteer and moth expert Maria finally caught one in her moth trap. The specimen was quickly photographed and released before being added to the Montgomeryshire moth list for the first time. Maria has catalogued over 400 species of moth on Cors Dyfi to date, undoubtedly one of the great success stories to emerge since the Trust took over the site.

Bittersweet


Water buffalo

Birds benefit

Another group of animals doing well since Cors Dyfi's rejuvenation is birds. Over 100 species have been recorded either breeding or passing through, with some rather pleasant surprises. Two common crane, a willow tit, honey buzzard and a purple heron make up the unusual species recorded but what about those birds that call Cors Dyfi home? Eight species of warbler now nest on the reserve and an early morning walk in spring time around the 500 metres of boardwalk will be rewarded with the most sensational experience. An orchestra of willow and grasshopper warblers, blackcaps, reed and garden warblers, chiffchaffs, sedge warblers and whitethroats compete for their fair share of audio coverage among all the other bird life. If ever a crash-course in warbler song identification were required, an hour walking up and down Cors Dyfi on a still May morning would be hard to beat.

The boardwalk gives access to some of the boggier parts of the reserve.

It's easy, isn't it, to always seek out the unusual or rare? But how about those bread and butter species that we sometimes forget in the search of something new? The frogs, the lizards, the small organisms, the insects and a host of other wildlife that, for whatever reason, do not attract the status and profile afforded to some other species.

It is always a pleasure seeing children during the summer months mesmerized by the humble common lizard which basks on Cors Dyfi's boardwalk and numerous fence posts. Cold blooded, lizards have to use the direct heat from the sun to regulate their body temperatures which makes observing them easy. But it's finding that odd one in a hundred with a missing tail that the kids are drawn to: an evolutionary magic trick that a lizard in trouble employs to save itself. 'Autotomy' is common in numerous species spanning various groups, vertebrates and invertebrates alike, but to see it in action in front of your very eyes is something else. Finding a lizard with a half regenerated tail formed from cartilage rather than bone, and often with a different colour, is nature's equivalent to Houdini's best party trick.

Sparrowhawk

An inadvertent catalyst?

There's no question that most of the 120,000 visitors to Cors Dyfi over the last three years have come to see one species. Interest in the Dyfi Osprey Project seems be on the increase each year, especially since the stars of the show, Monty and Nora, have been featured on the BBC's Springwatch and Autumnwatch programmes. As the alliance between wildlife and tourism strengthens in Wales, the osprey has no doubt acted as the metaphorical carrot that draws people in – only to find that there is much more to see than one pair of birds. Who knows, the osprey may well act as the inadvertent catalyst for the

Ragged robin - one of the 96 recorded plant species on Cors Dyfi

Garden tiger moth, one of over 400 moth species recorded on the reserve

Soldier beetle

next generation of botanists, entomologists and conservationists.

Perhaps Cors Dyfi's greatest success in its short 'born-again' life is not the increasing numbers of species that we can conveniently write on to a list, but the re-engagement of people with wildlife and their environment. Children seeing a brimstone for the first time, adults seeing their first ever otter.

May 15th, 2010 was a fairly average day – average temperatures, average weather for the time of year. Until, that is, someone shouted 'dormouse' from the circular part of the boardwalk. Suddenly around 30 visitors were gathered, watching intensely and photographing a hazel dormouse just feet away for over an hour. Dormice are nocturnal, live in deciduous woodland and are particularly fond of hazel trees, or so said the guidebook one of the osprey visitors had with them. It was around 2pm on a sunny Saturday afternoon with plenty of people milling around and this particular animal was eating all it could on top of a willow tree in a wet peat bog. So much for guidebooks. That average day turned out to something quite special to a few people. Houdini may have performed his last trick but to those 30 people on that Saturday afternoon, this was pure magic.

***Emyr Evans** is a behavioural ecologist, photographer and writer who manages the Dyfi Osprey Project for Montgomeryshire Wildlife Trust.*

Cors Dyfi

Bron i 20 mlynnedd yn ol cafodd Ymddiriedolaeth Bywyd Gwyllt Trefaldwyn blanhigfa o Sbriws Sitka ger Machynlleth, a dechreuodd ei droi yn hafan i fywyd gwyllt. Daethpwyd byfflo dŵr yno i reoli'r cynefin. Maent wedi corddi'r ddaear, ac mae llu o blanhigion fel y rhedynen gyfrdwy a'r codwarth caled wedi ymateb. Bellach mae'n gartref i restr hir o blanhigion ac adar, prin a chyffredin. Daeth yn lle hudolus a diddorol i blant ac oedolion. Wedi i bâr o weilch ddechrau nythu yma, dechreuwyd Prosiect Gweilch y Dyfi. Denodd hwnnw 120,000 o ymwelwyr dros y tair blynedd ddiwethaf. Wedi dod i'r warchodfa oherwydd y gweilch i ddechrau, mae pobl yn darganfod amrywiaeth anhygoel o fywyd gwyllt wedi cyrraedd yma.

Running a Wildlife Trust

Wildlife Trust members enjoying Skomer

Although for many it is a labour of love, working for a Wildlife Trust requires a high level of professionalism to go with the dedication which is so much a feature of the Wildlife Trusts. ***HUW JENKINS*** *finds out what it takes to run a Wildlife Trust.*

What could be more idyllic than working for a Wildlife Trust? TV wildlife programmes may lead you to believe that it's a glamorous job, all outdoor encounters with nature by rugged, seasoned ecologists. The truth, however, is not quite so romantic.

For a start, the Trusts have to handle an enormously broad portfolio. There are many and varied issues which go with land ownership and management, including legal issues, signage, access, open days and events, management planning and carrying out the practical tasks to keep reserves in tip-top condition. As a bridge between people and wildlife, the Trusts have an almost infinite communication task, putting together talks and lectures, organising volunteers, running programmes of events, visiting schools, and raising awareness of, for example, the importance of the marine environment. Conservation does not only take place in reserves, so there is all the work to champion wildlife in the wider 'living landscape' and 'living seas'.

As the Wildlife Trusts have grown, so has the need for professional management, notably on the financial side. Raising funds, working with funding agencies to achieve joint goals, and keeping budgets under close scrutiny doesn't sound like suitable work for an ecologist. It is essential, nevertheless. To find out how they manage this balancing act, I spoke with some of the people running the trusts.

Getting acquainted

North and South

Frances Cattanach joined North Wales Wildlife Trust (NWWT) in 1986 as the conservation officer with a budget of £10K and an administrative assistant. Today she is chief executive with 18 staff plus seasonal wardens, 250+ volunteers, 5500 members and a budget hovering around £600K. Income and budgets can fluctuate upwards to £1m depending upon the success of winning grant funding and the phasing of projects; understanding what is the core business and managing the spikes without over-committing is essential.

More so than other trusts in Wales, NWWT's funding is heavily geared towards grants, which represent about 60% with the other 40% coming from members, including legacies, trading and income from two shops run entirely by volunteers. This is probably a reflection of the sparsely populated geography and relative lack of wealth.

Sarah Kessell has been running the Wildlife Trust of South and West Wales (WTSWW) since 2009 having started her conservation career with Surrey Wildlife Trust before moving to Wales in 2004. For Sarah the trust is an idyllic organisation to work for; dynamic, not bureaucratic but ordered, with a flat structure. Good ideas are quickly discussed and implemented without reference to a far flung head office. Colleagues have an energy and passion, putting in long hours for moderate pay but benefitting from high job satisfaction.

Finding new members

Recruiting new members is a vital part of the job, not just for financial support but also to give the Wildlife Trusts their political clout. 25,000 members in Wales is a formidable number but only half that of the RSPB and a quarter of the (estimated) National Trust membership in Wales. Why are membership numbers of this great cause so comparatively low?

Retaining members is equally important and Julian Jones, who manages RWT, can claim the highest rate of retention of any Wildlife Trust in the UK last year. Members are of course interested in wildlife but many are also passionate about Radnorshire – they have a sense of belonging to the old county as opposed to Powys or an amorphous Mid Wales. Like most of the Trusts, RWT has an ecology consultancy business, Radnorshire Wildlife Services Ltd, which began in 2005. In the previous year their turnover of £70,000 contributed £20,000 to the work of the Trust. As Julian says, "That's equivalent to an awful lot of fundraising garden parties!"

A mid Wales Trust

Scotland has a single trust, with a last year income of £6m and 35,000 members; would Wales be

Lisa Standley

Russ Johnson recruiting new members

Zsuzsanna Bird

Emptying a Longworth trap

better served through a single trust? Rachel Sharp, who runs Wildlife Trusts Wales (WTW), the co-ordinating body which represents the six trusts on national issues, thinks a single trust would go against the fundamental appeal of being a local organisation: "The Wildlife Trust movement is unique in its local expertise - volunteers and members who care passionately about their local wildlife. In Wales we have a system to get the best from all worlds: local Trusts to deliver nature conservation on the ground; a national WTW to influence the Senedd; and the Royal Society of Wildlife Trusts to deliver UK initiatives. So currently we are not looking at merging into one Trust."

The goals of the Wildlife Trusts are to do as much as possible to protect wildlife, which is a huge task. Reading some of the annual reports, it is clear there are some tough choices: "we had to sell off the family silver to reduce the overdraft", "we had no choice but to make staff redundant", and so on. Is it inevitable that trusts will overreach and go through boom and bust? Rachel says 'Funding fluctuates, but despite financial difficulties, the Trusts have continued to achieve so much, and by planning ahead, we continue to grow.' In the past there might have been a tendency to go for any grant or opportunity, a case of the tail wagging the dog, but these days the Trusts are very selective in what they go for. The emphasis today is as much on protection of the wider countryside as on acquiring and protecting individual sites.

While maintaining their focus on what they can do for nature, the Trusts also promote 'what nature can do for us'. They are developing their work on the services which nature can provide, such as flood prevention and carbon safeguarding. The big goal is to get everyone in Wales to understand, appreciate and implement the ecosystems approach, making good stewardship of nature part and parcel of everything we do, so that development embraces nature, natural processes and resources.

The day job

What's it like being the chief executive? They all love

Huw Jenkins

Trust worker Ben Stammers keeping an eye on Cemlyn lagoon

the job but here are some of their comments:

"Colleagues are first and foremost ecologists and getting them to be more commercial is a challenge."

"We have to become more self-supporting, reviewing and cutting costs, renegotiating contracts, investing in assets."

"As well as the obvious, such as running nature reserves, we have got to be professional in everything else we do, which can include the skill sets of operating a shop, a café and holiday accommodation."

"In most organisations the chief executive is supposed to take an outward view, networking and building contacts, but necessity makes my role very hands on and inward looking. Work-life balance can be tricky but I've now set myself a goal of no more than one evening meeting a week."

I suspect running a Wildlife Trust is a bit like a swan floating serenely by – there can be a lot of frantic paddling beneath the surface.

***Huw Jenkins** is the marketing manager for* Natur Cymru *and a community reporter for Radio Wales. He gives talks to groups and societies across north and mid Wales in return for them buying subscriptions to* Natur Cymru.

Gwaith yr Ymddiriedolaethau Natur

Mae gwaith yr Ymddiriedolaethau Natur yn swnio'n ddeniadol a llawn 'glamor', ond mae gwarchod bywyd gwyllt yn cynnwys tasgau di-rif – o reoli gwarchodfeydd i weithio gyda gwirfoddolwyr, ysgolion a busnesau. Mae pob Ymddiriedolaeth yn wahanol, ond maen nhw i gyd wedi ffurfio rhwydwaith o warchodfeydd ac yn rhoi pwys mawr ar wasanaethu eu haelodau a chynyddu eu nifer. I'r rhan fwyaf ohonynt, llafur cariad yw'r cyfan; ond er mwyn gweithio gydag Ymddiriedolaeth Natur rhaid bod yn hynod broffesiynol a rhaid meddu ar yr ymroddiad sydd mor nodweddiadol o'r Ymddiriedolaethau'n gyffredinol.

Dandelions of Cardiff

There are suspicions that botanists who study dandelions are mad. Tentatively I started looking at my local Cardiff dandelions in 2008 and was soon committed; the fun of naming them, of seeing things nobody else had noticed, and of even finding new species, bit deep.

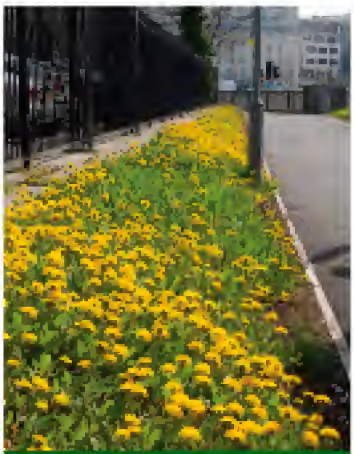
The project originated when, in 2007, one of the world's dandelion experts, Professor John Richards of Newcastle University, donated his 'National *Taraxacum* collection' to the Welsh National Herbarium held here in Amgueddfa Cymru-National Museum Wales. This collection forms the basis of our current understanding of dandelions in Britain and Ireland as set out in his BSBI *Taraxacum* handbook[1]. The 240 species in Britain are difficult to identify without a good reference collection - I now had the perfect resource to use to get to know more about them.

I started by collecting on a few local road verges and Richards named the vouchers for me. I learned from those specimens and reapplied the knowledge in subsequent years. At first I found things randomly and was not very good at naming them myself. Soon I began to learn the differences – and some were different. Among the material from the A470 verges at Pantmawr, Cardiff, was a giant dandelion which Richards didn't know. On holiday in Devon I found two more apparently 'new' species, though one of those turned out to be the Eastern European *T. subericinum*, new to Britain[2]. I now have six dandelions which do not fit into the straight-jacket of known species.

The sheer diversity of dandelions in small areas was another surprise. Fourteen species were recorded on the museum lawns alone, eight in my garden, 12 on the Pantmawr verges. I began to compile a list of all the records for Cardiff and collected more widely. By 2010 I had a list of 102 species in Cardiff, 46 of which were first records for Vice-county 41 Glamorgan and several of which were new to Wales. In 2011, I had another eight new to Glamorgan and another unknown species near Cardiff Central Station.

So why the diversity and is it unusual? Dandelions reproduce clonally, and there are numerous similar yet consistently different 'microspecies'. Road verges, gardens and waste ground provide perfect habitat, and urban areas tend to have large numbers of species introduced from Europe, often in grass seed. Many dandelions, especially those in Section *Ruderalia*, are weeds – very good weeds. But not all dandelions are weeds – some such those in Section *Palustria* and Section *Celtica* can be indicators of high quality habitats and about 40 dandelions are British endemics (*T. breconense* is the only one endemic to Wales).

Cardiff does seem to be taraxacologically rich, but not unusually so. In the adjacent vice-counties at least 143 species have been recorded in Monmouthshire, 151 in Breconshire and 109 in Carmarthenshire. The Cardiff records and pictures are on the Museum website, and you are welcome to visit the collections (http://www.museumwales.ac.uk/en/3585)



Tim Rich

Verge by Cardiff Law Courts dominated by *Taraxacum sagittipotens* with some of the rarely introduced *T. hepaticum*

Acknowledgements

I would like to pay tribute to the immense knowledge of John Richards without whom this article would not have been possible.

Tim Rich *is Head of Vascular Plants in the Department of Biodiversity, National Museum Wales, Cardiff.*

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New Dyfi Catchment and Woodland Research Platform

As the Welsh Government develops its 'Living Wales' agenda, it is clear that the central theme of managing the environment for multiple benefits will require a holistic approach to enable the aims to be met.

This is in keeping with other initiatives, such as the Millennium Ecosystem Assessment that was completed in 2011 and which has provided a comprehensive overview of the complexities of managing the environment under current and future climates.

These initiatives aim to define and measure Ecosystem Services, categorised as:

- Provisioning (e.g. food, fibre)
- Regulating (e.g. water and climate),
- Supporting (e.g. soil formation, habitat provision)
- Cultural (e.g. aesthetic, well-being)

Whilst it is relatively easy to list the various ecosystem services, it is much more difficult to provide a value for each, and even more difficult to determine their relative contributions, both positive and negative, by location and over time. Such a multi-dimensional definition of the environment needs a multi-disciplinary approach to its measurement.

The Dyfi Catchment & Woodland Research Platform (DCWRP) is a new initiative which aims to address some of these key research and evidence-gathering requirements, and was formally launched at the Tabernacle, Machynlleth on 29th March 2012. A notable range of keynote speakers, including Professor John Harries, Chief Scientific Adviser for Wales, provided the background to the initiative, and their presentations can be seen on the DCWRP website. John Griffiths AM, Minister for the Environment and Sustainable Development, closed the meeting by describing the increasing need for improved measurement of environmental functioning to support the Living Wales initiative: *"I welcome the establishment of the Dyfi Catchment and Woodland Research Platform and am sure it will make an important contribution to the Welsh Government's aspirations to manage the environment in a more joined-up way, as set out in Sustaining a Living Wales."*

DCWRP is a consortium of researchers and stakeholders led by Forest Research (FR) and Aberystwyth University, Institute of Geography and Earth Sciences (IGES) and Institute of Biological, Environmental and Rural Sciences (IBERS), with support from Forestry Commission Wales. **www.forestry.gov.uk/fr/dyficatchment**

The Dyfi catchment has been selected for this new research initiative because, at a landscape scale, it is an excellent 'platform' to study ecosystem function in all its facets. It spans a very wide range of habitats, including notable Special Areas of Conservation, especially the blanket bog at Cors Fochno, many SSSIs, Special Protection Areas and a National Nature Reserve. It also benefits from being a UNESCO Biosphere site and the DCWRP will work closely with contributors to the Biosphere.

Each of these habitats provides ecosystem services that are important to people living and visiting the Dyfi area. Farming and forestry deliver food and timber, whereas the blanket bogs, that have developed over millennia, provide services such as carbon sequestration and flood alleviation. At the coastal end of the Dyfi, the constantly shifting sand dunes provide recreation and tourism.

Understanding how these habitats are joined and interact with each other under different land uses, is a complex task. The new Dyfi Research Platform will build on the already extensive research in the area carried out by IGES and IBERS scientists and their collaborators (e.g. see **http://www.cccr.ac.uk/**).

The emphasis has been on water relations, both fresh and marine. With additional input from Forest Research and Forestry Commission Wales, new research on the interactions of trees and environment at the landscape scale is commencing. Bringing these facets together will require further expertise at all levels, and additional input to the DCWRP is very welcome.

***Hugh Evans**, Head of Forest Research in Wales*

Mammal news

In late March, John Griffiths, Minister for the Environment and Sustainable Development, announced the Welsh Government's next steps to eradicate bovine TB in Wales.

Taking a great step forwards and away from previous, cull-led policies, he announced a programme where **badgers**, rather than being killed, would be trapped and vaccinated against TB. His announcement came on the back of an independent scientific review, led by Professor John Harries (Chief Scientific Adviser to the Welsh Government) and commissioned by the Minister, which looked at the entire body of evidence informing the Eradication Programme.

Following the review's report in late 2011, John Griffiths said that he was "not at present satisfied that a cull of badgers would be necessary to bring about a substantial reduction in the incidence of bovine TB in cattle, in which case I cannot authorise a cull under the Animal Health Act 1981". The previous government's legislation for badger culling, the Tuberculosis Eradication (Wales) Order 2009, was overturned in the Court of Appeal following a legal challenge by the Badger Trust.

The Wildlife Trust of South and West Wales (WTSWW) on behalf of the Mid Wales **Red Squirrel** Project secured significant funding from Environment Wales and Countryside Council for Wales (CCW) to carry out strategic **grey squirrel** control around the Tywi Forest in mid Wales. Volunteers helped survey the broadleaf woodlands of the buffer zone to identify signs of squirrel activity. This was followed up with 64 days of intensive live trapping by contractors to remove grey squirrels from land under multiple ownership in the identified pilot area of the Cothi and Gwenffrwd valleys. This has been the first opportunity to undertake truly strategic grey squirrel control work in this way. WTSWW hope to continue this work to safeguard the red squirrels in the core Tywi Forest area.

Carmarthenshire Local Biodiversity Partnership received funding through the county's Community Strategy to undertake work for Carmarthenshire's **dormice** this winter. Biodiversity Officer Isabel Macho has been working with local ecologist Jacqueline Hartley and WTSWW around Cross Hands, a key area for the species. Dormouse boxes and nest tubes have been erected at various sites by volunteers and an information panel produced. Building on a 4 month Peoples Trust for Endangered Species-funded internship by Richard Pond with WTSWW, some hedgerow planting has taken place to strengthen habitat connectivity in the area. New sites for the species continue to be identified.

In 2011 Brecknock Wildlife Trust (BWT) volunteers monitored 300 dormice boxes at Crychan & Halfway forests in a Forestry Commission-funded project. Monthly checks were carried out between April and October in accordance with National Monitoring guidelines. They found 342 dormice over the course of the season, with peaks in June and September. The highest number was 31 animals in 50 boxes in September 2011. This is the second year of increasing dormouse numbers: there were very few other small mammals in the boxes.

BWT have gained funding from Environment Wales to survey trees for **bats** in Brecon, Hay, Crickhowell and Talgarth in the Brecon Beacons National Park and are asking people to come forward if they know of any potential bat roosts in these towns.

Wild Deer Management in Wales 2011-16 sets out the Welsh Government's (WG) aims and objectives for the sustainable management of **deer** in Wales, in both the public and private sectors. The strategy was developed by WG, Forestry Commission Wales (FCW), CCW, and the Deer Initiative Partnership and supports the WG vision that "Wales benefits from its wild deer population in balance with the natural, social and economic environment." It recognises that although an expanding deer population would make it more difficult to deliver many of the objectives in the Woodlands for Wales strategy and objectives for agriculture and the natural environment, WG should uphold the value of wild deer as part of our natural heritage. We should also ensure that where active management is required, it is sustainable as well as safe, humane and effective. You can download a copy of the strategy from the Welsh Government website.

Last year, there was evidence of **hare** coursing in the hills above Llanfairfechan, Conwy, when several dead hares were found dumped in the local river. Hare coursing is

illegal under the Hunting with Dogs Act 2004 and, should you suspect it, the best thing is to call 101 to report a suspected wildlife crime incident and this will be passed on to one of the police officers seconded to CCW. On the other hand, shooting is still legal under the Hares Preservation Act (1892), although it is an offence to sell or expose for sale any hare or leveret between 1st March and 31st July. The Act is meant to discourage shooting during the main breeding season. It is an offence for anyone to use any firearm or gun of any description at night for the purpose of killing game.

The *Mammals in a Sustainable Environment Project* collected **otter** spraint around the north-west Wales coast, followed by a spraint analysis workshop. The great news is otters appear to be widespread across the Llŷn and the north Wales coast, and making a comeback across much of Anglesey. In the spraint 17 marine and freshwater fish species were found, the most common being eel, but including salmon and trout. A few also contained bird feathers, and one a bird's claw, thought to be from a young moorhen. Crab shells were prominent and it is thought that juvenile otters may favour crabs since they're easier to catch. The remains of wood mouse, pygmy shrew and frog were also found.

Treborth Botanic Gardens, Bangor, reported a number of red squirrel sightings in the gardens around Christmas, and of singles in Penrhosgarnedd. Grey squirrels have been severely depleted in this area by trapping. **Fox** numbers are up, and **weasel** and stoat sightings are as per normal, and reasonably good. The **soprano pipistrelle bat** colony in the lab roof has moved on but this species is still common in the garden.

Daubenton's bats are frequent at the lake by Treborth School. Sadly, **hedgehogs** are still scarce, while **wood mice** are extremely common along with **bank voles** in long grass plots.

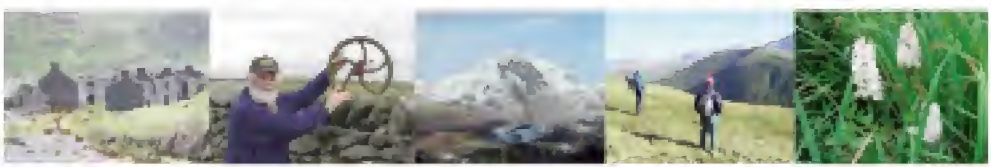
Frances Cattanach *is Director, North Wales Wildlife Trust*

Canolfan Parc Cenedlaethol Eryri • Snowdonia National Park Centre

Plas Tan y Bwlch

Cyrsiau i'w cynnal drwy y flwyddyn ar bynciau sy'n cwmpasu pob agwedd ar gefn gwlad, amgylchedd, diwylliant, hanes, paentio, ffotograffiaeth a chrefftau.

Darganfyddwch fwy am y maes hynod ddiddorol hwn yng nghwmni tiwtoriad arbenigol.



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Is Pwll-y-Felin in the Brecon Beacons a turlough?

A turlough is a seasonal lake associated with Karst terrain. In Wales most of our carboniferous limestone, and some of the geology which overlies the limestone, can create karst features such as sink holes, dolines and swallow holes. Pwll-y-Felin is associated with karst terrain (millstone grit overlying carboniferous limestone).

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Pwll-y-Felin is located east of Ystradfellta at Gweunydd Hepste NGR SN940120.

The water level in Pwll-y-Felin certainly changes. However, it is not known if these changes are indeed seasonal, although this is quite possible. The only published observation of water levels at Pwll-y-Felin[1] notes that it is "nearly always quite empty because the water makes its way between boulders and down cracks in the rock floor…". These observations may of course have been made in drier summer months.

The word 'turlough' is probably derived from the Gaelic *tuar loch* meaning dry lake. Turloughs are considered an Irish phenomenon, however there are turloughs in Northern Ireland and one in west Wales, Pant-y-Llyn.

A turlough is currently defined as 'a topographic depression in karst which is intermittently inundated on an annual basis, mainly from groundwater, and which has a substrate and/or ecological communities characteristic of wetlands'.

Furthermore, the filling and emptying should occur via an estavelle, or ephemeral spring, and there should be no surface water inlet or outlet. It is quite likely that the sink at Pwll-y-Felin is reversible (like an estavelle) and can also act as a spring, but there is currently no evidence for this. There is a clear surface water inflow to the east, fed by a spring source further again to the east. There is also a smaller inflow on the western side. The eastern inflow was estimated at over 2 litres per second during a site visit on 30th January 2012.

It is not known whether surface water input or groundwater input from the base of the sink has the greatest effect upon the filling or emptying of the feature.

Nor is it known if the vegetation surrounding this feature is dependent upon the fluctuations in water level, or indeed is characteristic of wetlands.

Due to the obvious surface water input, and uncertainty of the characteristics of the ecology and vegetation, Pwll-y-Felin can not be considered to be a turlough. It is, however, an interesting fluctuating karst-dependent water body that requires further understanding.

***Gareth Farr**, Environment Agency Wales*

1. North, F.J., 1962. *The River Scenery at the head of the vale of Neath.* National Museum of Wales. Page 36.

Green **Bookshelf**

Biodiversity in the North West: The Slime Moulds of Cheshire
Bruce Ing
University of Chester Press
2011
85 pages
£11.99

As shown by Bruce Ing's wonderfully illustrated article in *Natur Cymru* (No. 41), slime moulds are fascinating and beautiful organisms. Those reading the article will surely have been enthused to go out and search for them and the inclusion of his new book into their library can only enthuse them even more.

Many naturalists will be uncertain as to exactly what slime moulds are. Bruce begins his book by answering this question in some detail, which I found very helpful. Although they are unrelated to fungi, slime moulds produce fungus-like fruiting bodies and, as such, are often pursued by mycologists. Following this introductory section on the biology and taxonomy of these organisms, there is a brief account of the ecology and geology of Cheshire. There is also an interesting section on the history of slime mould recording in the vice-county. It is apparent that there has been a considerable recording effort in Cheshire over the years and that the number of slime moulds recorded there compares favourably with the surrounding counties.

The main body of the book lists all the species that have been recorded in the area. For each species a list of 10km squares is given in which it has been recorded, along with habitat, national frequency and dates of first and last records. For rarer or less recorded species a list of individual records is given. A glance through the records shows how important Bruce's own recording activities have been.

At the end of the book there are distribution maps covering all the recorded species: this is a very useful supplement and might encourage the searcher to go out and fill in the missing squares! There are also a few coloured photos which should further whet the appetite prior to excursions into the woodlands. This book, which is light enough to take into the field, is a must-have for those studying or embarking on the study of slime moulds in the north Wales area and will also be useful to anyone with an interest in biodiversity.

Charles Aron

Bumblebees
Oliver E Prys-Jones and Sarah A Corbet
Pelagic Publishing
2011
£19.99 130 pages

Bumblebees have undeniable appeal. They look like tiny flying teddy bears, and their ability to take off is aeronautically implausible. They have been the subject of many articles in this magazine. This popularity has stimulated the formation of an energetic Bumblebee Conservation Trust. It has also encouraged a number of excellent publications.

Twenty years ago the first edition of *Bumblebees*, was published. One of a series of ecology and identification handbooks for naturalists, it has been substantially revised for this latest, third edition. It is much more than an identification guide, dealing extensively with the natural history of bumblebees. This is based around the original research of one of the authors, and the final chapter contains useful information to help anyone interested in doing their own research to get started.

Several questions buzzed around my brain as I read this splendid handbook. I remembered that Alan Morley had written about unseasonal winter activity from buff-tailed bumblebee queens in *Natur Cymru* 10. It turns out that this species is regularly found starting a winter nesting cycle. A couple of bumble-bee species that I see fairly regularly are not included as recent records on the map for my County, but the text makes clear that some areas are not well recorded, and the onus is on me to pass my records on!

As well as maps at the end of the book showing the distribution of species, there are many line drawings and superb plates contributed by Tony Hopkins. They add detail and delight to a wonderfully informative text about a fascinating group of insects.

James Robertson

Marie Madigan has left for pastures new and a big thank you is due to her for the hard work she has put into her role as coordinator of NATUR for these past few critical years. With her help NATUR membership has grown, a busy training programme has flourished, and meetings and workshops have run smoothly. Mo Morgan has stepped in to help fill the gap left, and we wish her well in this role.

© RSPB Images
Linnet - climate confused?

Planning for the future

NATUR has now submitted responses to both the consultation on the Single Body (Natural Resources Wales) and the Green Paper (Sustaining a Living Wales): both of these can be viewed on the NATUR website at **www.natur.org.uk**. NATUR has been recognised as a 'Critical Friend' (stakeholder) by the Welsh Government and we hope to continue to influence the significant changes in the way we ensure our cherished countryside and marine environment is passed on to future generations. Attendance at the NATUR Aberystwyth Conference on February 28th, when over 90 people participated, demonstrated just how important we all feel it is to get the right balance for the future here in Wales.

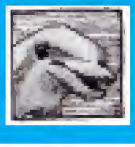
Can you help?

We continue to be asked to run courses in basic taxonomy and other areas to enable people to gain the skills necessary to work in the environmental field. University courses are still not providing these basic skills and NATUR is working to address this and other skills gaps. If you would like to contribute to this programme of training and course accreditation please contact Mo Morgan **mo@natur.org.uk**. Passing on specialist skills is an invaluable way to ensure that the habitats and species we treasure will still be here in the future. Sometimes just joining an expert in the field is all that is required, so if you would be happy to take someone with you on your excursions please let us know.

Climate confusion

Although climate change is on everyone's agenda, this year I wonder if the Olympics have clouded our vision! I recall bad summer weather coinciding with the sunspot cycles and suspect our weathermen and women are keeping quiet about this for obvious reasons. The bad weather has confused plants and animals. Goldfinches and linnets were behaving as if it was still winter in April – which it was! – while our first fledgling mistle thrushes and robins beat the ravens out of the nest. Garden plants were flowering in January but our sensible natives have waited, with violets, wood anemones, bluebells and early purple orchids giving a good show in early May. Every year is different with new things to see. I have discovered a little patch of crosswort (it is scented) growing near my house and a pair of green woodpeckers has returned to the valley. Getting out there whatever the weather, reminding ourselves why we love this beautiful place, is so important, even more so when the sun doesn't shine; happy hunting!

Celia Thomas



Marine matters

Protected or not?

The good weather in March allowed dolphin surveys in Cardigan Bay to get going before Easter. The Cardigan Bay Marine Wildlife Centre in Newquay reported sightings from both boat- and shore-based surveys, as did Seatrust on surveys around south-west Wales.

These surveys continue to add to our knowledge of Cardigan Bay and emphasise the importance of its cetacean populations. As these animals are at the top of the food chain it also shows the quality of Cardigan Bay's marine ecosystems generally.

Further work this winter has looked at the wider distribution of 'our' dolphins. Photo identification surveys undertaken by Manx Wildlife Trust around the Isle of Man have been analysed by researchers at the Cardigan Bay centre. To their surprise they found that 'our' dolphins spend at least part of their winter up north in Manx waters. The results included at least four animals recorded in the Newquay area, including one that has been seen regularly since 2005. As we get to know more about our cetaceans it is clear that we know very little about how far they range and what their habitat requirements are.

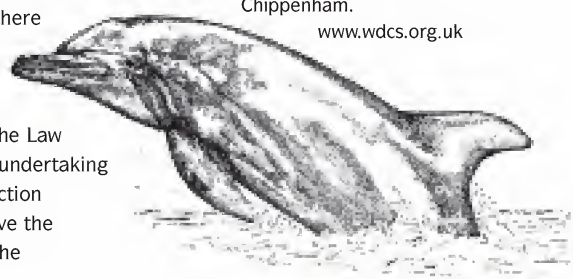
This raises many questions as to how we protect mobile species such as cetaceans. All cetaceans are supposedly given full protection under the EU Habitats and Species Directive. Under this legislation just two, of over two dozen species in UK waters, have to have areas of critical habitat protected as Special Areas of Conservation (SACs). Of these two – harbour porpoise and bottlenose dolphin – only the dolphin has any area protected in UK Waters, and then only two relatively small areas (in terms of the areas where they occur). Porpoises, despite the clear requirements on the Directive, have no protected areas in the UK.

In a recent report[1], the Whale and Dolphin Conservation Society (WDCS) undertook a detailed analysis of the protection afforded to cetaceans in the UK. It concluded that although cetaceans are generally afforded adequate legal protection, in practice the way we implement the law is sadly lacking.

The report showed that despite the requirement for all cetaceans to be fully protected at all times, there is no legal mechanism or coherent strategy in place to implement this, leaving most cetaceans unprotected. It also showed that the two SACs have little real protection and are under threat from oil and gas exploration, scallop dredging and other issues. Finally, the regulations to protect porpoises from disturbance appear to have been downgraded in recent changes. In conclusion, it finds that there is little real protection for our cetaceans over most of their ranges. For England and Wales the Law Commission is currently undertaking a review of wildlife protection legislation, which may give the opportunity to improve the situation. However, as the WDCS report shows, it is the lack of any Government will to properly protect cetaceans that is the real problem. In Wales we have opportunities to correct this, but we are in danger of missing them. There is currently a consultation on marine protected areas, to be designated under the Marine Bill. However, the Welsh Government are only proposing to protect three or four small areas from a short list of 10 sites around the Welsh coast. These will be of no help to mobile species like cetaceans. There are proposals for a new ecosystem-based approach to conservation under the 'Living Wales' consultation. Currently, this is too vague to see if it will benefit cetaceans and the complicated marine ecosystems of which they are a part. It is important that, difficult though it is, we are able to protect wide ranging wild animals that we cannot subject to management plans or other controls – we need to give them the space and protection to allow them to live and prosper.

Mick Green

1. Green et al, 2012. *Looking forward to 'strict protection': A critical review of the current legal review for cetaceans in UK waters*. WDCS, Chippenham. www.wdcs.org.uk



International Day for Biodiversity

www.museumwales.ac.uk/en/unknownwales/

On 19th May, the nearest Saturday to the UN's International Day for Biodiversity, the National Museum and the Wildlife Trust of South and West Wales jointly presented the *Unknown Wales* conference in Cardiff. I was there for *Natur Cymru*, to promote the magazine as well as biodiversity – ultimately, it's the same thing!

Along with over 1700 others, I enjoyed a variety of wonders. A man from the museum fed tasty treats to a table full of carnivorous plants, carefully placing a woodlouse into the open mouth of a hungry plant – by the end of the day the plants were well stuffed and fast asleep. A beautifully restored ichthyosaurus skull, discovered at Penarth, was recently acquired by the museum: enthusiastic staff brought it to life, highlighting amongst other things an ammonite in its eye. Stars of the show were two slow worms from Flat Holm, gracefully moving around the keeper's fingers and flicking out their tongues

I also enjoyed two of the day's seven lectures. Paul Kay's spectacular photographs of marine fishes around Wales have often featured in *Natur Cymru* – he is a great advocate of using photography for identification. Vaughn Matthews from the Wildlife Trusts reported on a project to monitor how Tir Gofal had benefitted brown hares and water voles – depressingly, it seems there are few significant improvements.

Back home in Snowdonia, there was a noisy commotion high up in a Scots pine as resident crows shoved a young tawny owl off a branch. It spiralled to the ground in front of our barn and the crows swooped down upon it. The owl did not appreciate our several attempts to rescue it, nor the haven of a cardboard box, and managed a 50m flight to take shelter beneath the low hanging branches of a willow. At least we could keep an eye out and make sure the crows did not return – a real contribution to the day for international biodiversity.

Huw Jenkins

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Courses at Denmark Farm, Lampeter	
Entomology: Larger Insects of Wales	13-07-12
Understanding British Mammals 2	20-07-12
Understanding Bats	10-08-12
Pond & Stream Invertebrates	28-09-12
Centre for Alternative Technology, Machynlleth	
Dragonflies	22-06-12
Understanding British Mammals 1	29-06-12
Understanding British Mammals 2	27-07-12
Entomology: Larger Insects of Wales	27-07-12
Understanding Bats	03-08-12
Pond & Stream Invertebrates	12-08-12
Introduction to Permaculture	17-08-12
Courses at the Welsh Wildlife Centre, Cilgerran	
Understanding ***Marine*** Mammals	22-06-12
Understanding British Bats	13-07-12
Llysdinam Field Centre, Llandrindod Wells	
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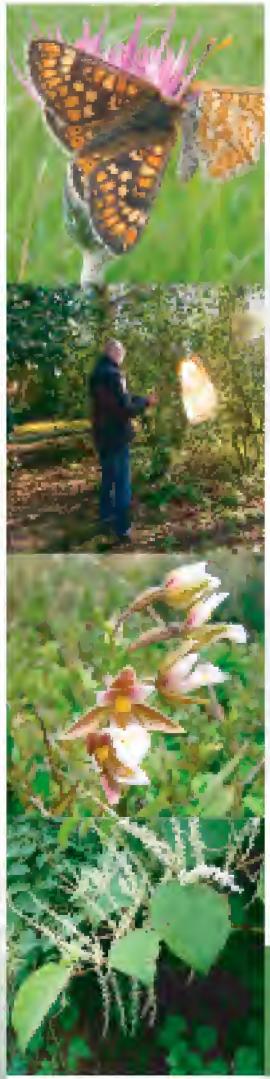

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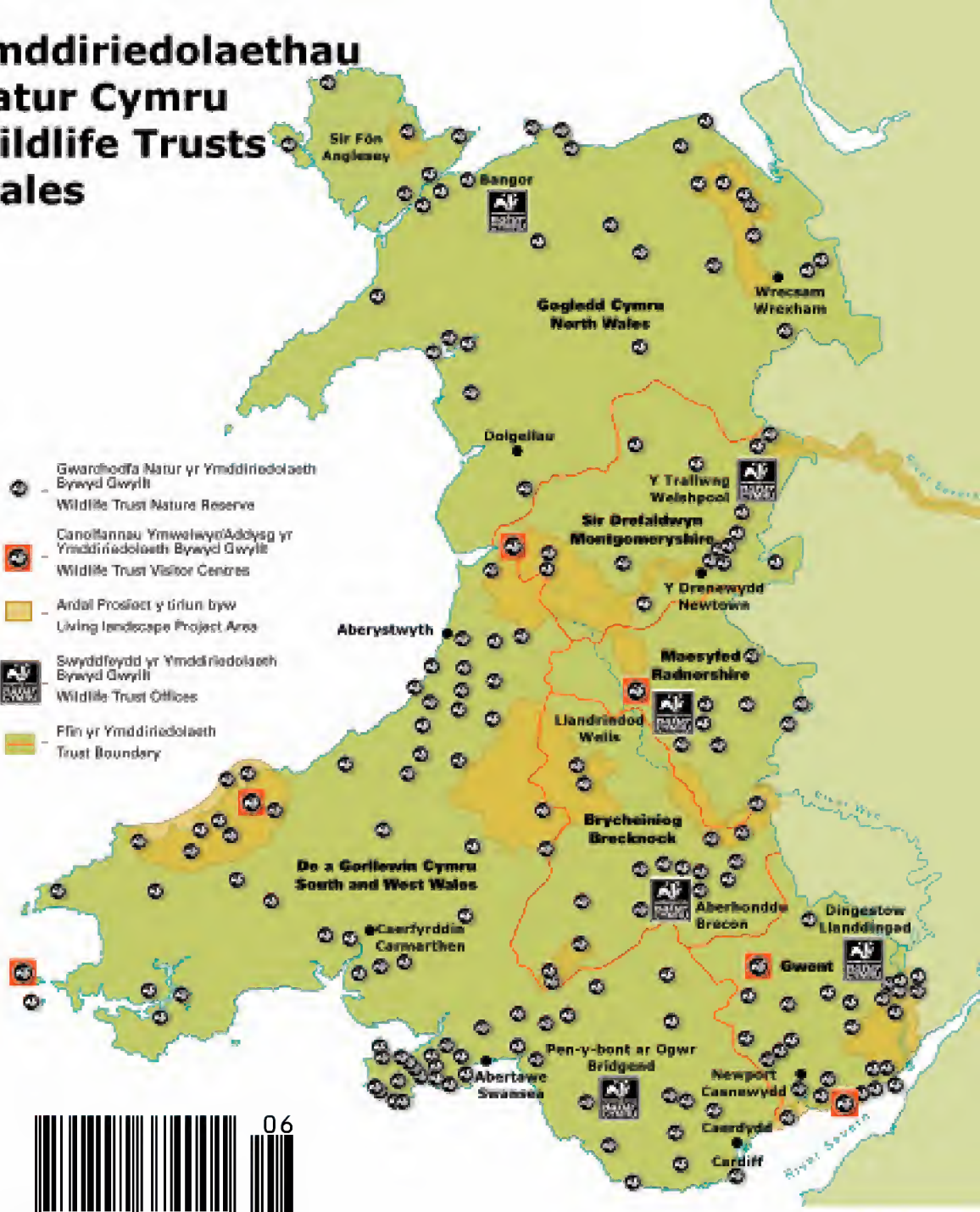

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